

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Data Requirement:

PMRA Data Code: 9.8.6
EPA DP Barcode: 358148
OECD Data Point: IIIA 10.8.1
EPA Guideline: OPPTS 850.4250 (123-1b)

in database under
288009

Test material: DPX-KJM44 80WG (AI: Aminocyclopyrachlor acid) **Purity:** 76.5% acid; 81.6% methyl ester
*DPX-KJM44 80WG is a formulation containing 81.6% of aminocyclopyrachlor methyl ester. The study authors converted the methyl ester content to its acid equivalent, aminocyclopyrachlor acid, and conducted statistical analyses in terms of the acid equivalent. This acid equivalent will be reported as AE in this study where appropriate.

Common name: Aminocyclopyrachlor methyl ester
Chemical name: IUPAC: Methyl 6-amino-5-chloro-2-cyclopropylpyrimidine-4-carboxylate
CAS name: Methyl-6-amino-5-chloro-2-cyclopropyl-4-pyrimidinecarboxylate
CAS No.: 858954-83-3.
Synonyms: Aminocyclopyrachlor, DPX-KJM44, DPX-MAT28 methyl ester

Common name: Aminocyclopyrachlor acid
Chemical name: IUPAC: 6-Amino-5-chloro-2-cyclopropylpyrimidine-4-carboxylic acid
CAS name: 6-Amino-5-chloro-2-cyclopropyl-4-pyrimidinecarboxylic acid
CAS No.: 858956-08-8.
Synonyms: Aminocyclopyrachlor, DPX-MAT28

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Date: 6/16/09

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Reference/Submission No.: {.....}

Company Code {.....} [For PMRA]
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Use Site Category: {.....} [For PMRA]
EPA PC Code ~~128008~~ 288009

Date Evaluation Completed: 10/09/09

CITATION: Porch, J.R., and K.H. Martin. 2008. DPX-KJM44 80WG: A Greenhouse Study to Investigate the Effects on Vegetative Vigor of Ten Terrestrial Plants Following Foliar Exposure. Unpublished study performed by Wildlife International, Ltd., Easton, Maryland. Laboratory Study Number: 112-611. Study sponsored by E.I. du Pont de Nemours and Company, Wilmington, Delaware. Sponsor Study No.: DuPont-22801. Study completed June 23, 2008. Revision 1 completed August 28, 2008.

DISCLAIMER: This document provides guidance for EPA and PMRA reviewers on how to complete a data evaluation record after reviewing a scientific study concerning the acute toxicity of a pesticide to terrestrial vascular



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plants. It is not intended to prescribe conditions to any external party for conducting this study nor to establish absolute criteria regarding the assessment of whether the study is scientifically sound and whether the study satisfies any applicable data requirements. Reviewers are expected to review and to determine for each study, on a case-by-case basis, whether it is scientifically sound and provides sufficient information to satisfy applicable data requirements. Studies that fail to meet any of the conditions may be accepted, if appropriate; similarly, studies that meet all of the conditions may be rejected, if appropriate. In sum, the reviewer is to take into account the totality of factors related to the test methodology and results in determining the acceptability of the study.

EXECUTIVE SUMMARY:

The effect of DPX-KJM44 80WG (formulation containing the acid equivalent aminocyclopyrachlor acid of aminocyclopyrachlor methyl ester) on the vegetative vigor of monocot (corn, *Zea mays*; onion, *Allium cepa*; oat, *Avena sativa*; and ryegrass, *Lolium perenne*) and dicot (cucumber, *Cucumis sativa*; bean, *Phaseolus vulgaris*; oilseed rape, *Brassica napus*; sugarbeet, *Beta vulgaris*; soybean, *Glycine max*; and tomato, *Lycopersicon esculentum*) crops was studied at varying nominal reported application rates of 0 (negative and solvent controls), test levels ranging from 0.0086 to 400 g ae/ha, depending on the species tested, which were equivalent to nominal concentrations of 0 (negative and solvent controls), test levels ranging from 0.0000076 to 0.355 lbs ae/A, depending on the species tested.

The growth medium used in the seedling emergence test was a sandy loam soil (pH 6.2 in water, 0.6% organic carbon). The geographic location and sampling depths were not reported. On Day 21, the surviving plants per pot were recorded and cut at soil level for measuring the shoot height and dry weight; the reviewer converted all replicate total dry weight values to average dry weight per plant per replicate by dividing the total replicate dry weight by the number of surviving plants per replicate.

Almost every species except ryegrass was affected for the endpoints dry weight and shoot height, while survival was the least sensitive endpoint evaluated. Most species that toxicity values could be obtained for tended to demonstrate a dose-response relationship.

There was chlorosis, leaf curl, mortality, necrosis, and stem curl at the higher treatment levels for most species tested. Ryegrass only had two affected replicates at the highest treatment level. Bean, sugarbeet, tomato, and soybean were affected at almost every test level.

Onion was the most sensitive monocot, based on dry weight, with NOAEC and EC₂₅ values of 0.0028 and 0.0058 lbs ae/A, respectively. Bean was the most sensitive dicot, based on shoot height, with NOAEC and EC₂₅ values of <0.000018 and 0.000075 lbs ae/A, respectively.

Maximum Labeled Rate: 400 g aminocyclopyrachlor acid/ha, equivalent to 0.355 lbs aminocyclopyrachlor acid/A, 0.464 lbs formulation/A, and 0.379 lbs aminocyclopyrachlor methyl ester/A.

Results Synopsis

Aminocyclopyrachlor acid

Monocot

EC ₀₅ /IC ₀₅ : 0.00073 lbs ae/A	95% C.I.: N/A
EC ₂₅ /IC ₂₅ : 0.0058 lbs ae/A	95% C.I.: 0.0019-0.017 lbs ae/A
EC ₅₀ /IC ₅₀ : 0.024 lbs ae/A	95% C.I.: 0.013-0.046 lbs ae/A
NOAEC: 0.0028 lbs ae/A	
Slope: 1.08	
Std err: 0.226	

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Most sensitive monocot: Onion
Most sensitive parameter: Dry Weight

Dicot

EC₀₅/IC₀₅: <0.000018 lbs ae/A 95% C.I.: N/A
EC₂₅/IC₂₅: 0.000075 lbs ae/A 95% C.I.: 0.000029-0.00019 lbs ae/A
EC₅₀/IC₅₀: 0.0018 lbs ae/A 95% C.I.: 0.0011-0.003 lbs ae/A
NOAEC: <0.000018 lbs ae/A
Slope: 0.489
Std err: 0.0444
Most sensitive dicot: Bean
Most sensitive parameter: Shoot height

Aminocyclopyrachlor Methyl Ester

Monocot

EC₀₅/IC₀₅: 0.00078 lbs me/A 95% C.I.: N/A
EC₂₅/IC₂₅: 0.0062 lbs me/A 95% C.I.: 0.002-0.018 lbs me/A
EC₅₀/IC₅₀: 0.026 lbs me/A 95% C.I.: 0.014-0.049 lbs me/A
NOAEC: 0.003 lbs me/A
Slope: 1.12
Std err: 0.485
Most sensitive monocot: Onion
Most sensitive parameter: Dry Weight

Dicot

EC₀₅/IC₀₅: <0.000019 lbs me/A 95% C.I.: N/A
EC₂₅/IC₂₅: 0.00008 lbs me/A 95% C.I.: 0.000031-0.0002 lbs me/A
EC₅₀/IC₅₀: 0.0019 lbs me/A 95% C.I.: 0.0012-0.003 lbs me/A
NOAEC: <0.000019 lbs me/A
Slope: 0.852
Std err: 0.170
Most sensitive dicot: Bean
Most sensitive parameter: Shoot height

DPX-KJM44 80WG

Monocot

EC₀₅/IC₀₅: 0.001 lbs form/A 95% C.I.: N/A
EC₂₅/IC₂₅: 0.0076 lbs form/A 95% C.I.: 0.0025-0.022 lbs form/A
EC₅₀/IC₅₀: 0.031 lbs form/A 95% C.I.: 0.017-0.06 lbs form/A
NOAEC: 0.0037 lbs form/A
Slope: 1.12
Std err: 0.485
Most sensitive monocot: Onion
Most sensitive parameter: Dry Weight

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Dicot

EC₀₅/IC₀₅: 0.000024 lbs form/A 95% C.I.: N/A
 EC₂₅/IC₂₅: 0.0001 lbs form/A 95% C.I.: 0.000038-0.00025 lbs form/A
 EC₅₀/IC₅₀: 0.0024 lbs form/A 95% C.I.: 0.0014-0.004 lbs form/A
 NOAEC: 0.000024 lbs form/A
 Slope: 0.852
 Std err: 0.170
 Most sensitive dicot: Bean
 Most sensitive parameter: Shoot height

This toxicity study is scientifically sound and classified as acceptable. It satisfies the guideline requirement for a tier II terrestrial plant vegetative vigor toxicity study.

Table 1. Summary of most sensitive parameters by species (lbs ae/A).

Species	Endpoint	NOAEC	EC ₀₅	EC ₂₅	EC ₅₀
Corn	Shoot Height	0.012	0.0071	0.096	>0.355
Oat	Dry Weight	<0.0028	0.033	0.16	>0.355
Onion	Dry Weight	0.0028	0.00073	0.0058	0.024
Ryegrass	None	0.355	>0.355	>0.355	>0.355
Bean	Shoot Height	<0.000018	<0.000018	0.000075	0.0018
Cucumber	Dry Weight	0.00035	<0.00035	0.00098	0.0039
Oilseed rape	Shoot Height	0.00035	<0.00035	0.0004	0.014
Soybean	Dry Weight	0.000068	0.000074	0.00064	0.0029
Sugarbeet	Dry Weight	0.00018	0.000099	0.00056	0.0019
Tomato	Dry Weight	0.00018	0.000077	0.00073	0.0037

I. MATERIALS AND METHODS

GUIDELINE FOLLOWED:

This study was conducted according to U.S. Environmental Protection Agency Series 850 Ecological Effects Test Guidelines (Draft), OPPTS Guidelines 850.4150 and 850.4250 (Tier I, II); U.S. EPA Pesticide Assessment, Subdivision J, Hazard Evaluation: Nontarget Plants, Series 122-1 and 123-1; and OECD Guideline 227, Vegetative Vigor Test. Deviations from OPPTS 850.4250 were noted:

1. The geographic location and depth of collection of the test soil were not specified.
2. All species were tested under similar environmental conditions instead of separating the cold-loving and warm-loving species.

These deviations do not impact the acceptability of the study.

COMPLIANCE:

Signed and dated No Data Confidentiality, GLP and Quality Assurance statements were provided. This study was conducted in compliance with the Good Laboratory Practice Standards as published by the U.S. EPA (40 CFR, Part 160; 1989), which are consistent with the OECD Principles of GLP (ENV/MC/CHEM (98) 17; 1998), and Japan MAFF (11 NohSan, Notification No. 6283; 1999) with the following exception: Periodic soil and water analyses were not performed according to GLP

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standards. These tests were performed using a certified laboratory and standard EPA analytical procedures.

A. MATERIALS:

- 1. Test Material** DPX-KJM44 80WG (Formulation containing aminocyclopyrachlor methyl ester, which was converted to the acid equivalent aminocyclopyrachlor acid for statistical analyses)
- Description:** Not reported
- Lot No./Batch No. :** DPX-KJM44-044 (Batch no.)
- Purity:** 76.5% acid equivalent; 81.6% methyl ester
- Stability of compound under test conditions:** Analytical recoveries of the presence of the test substance as both methyl ester and its acid equivalent at the highest test concentration at time 0 ranged from 99 to 103% of nominal test concentrations. *(OECD recommends chemical stability in water and light)*
- Storage conditions of test chemicals:** Stored at low humidity out of direct sunlight at temperatures <40°C.

Table 2. Physical/chemical properties of DPX-KJM44 80WG (AE: aminocyclopyrachlor acid).

Parameter	Values	Comments
Water solubility at 20EC	Not Reported	
Vapor pressure	Not Reported	
UV absorption	Not Reported	
pKa	Not Reported	
Kow	Not Reported	

2. Test organism:

Monocotyledonous species: Corn (*Zea mays*, Poaceae; 33J56), Onion (*Allium cepa*, Liliaceae; WI-301), Oat (*Avena sativa*, Poaceae; Armor), and Ryegrass (*Lolium perenne*, Poaceae; Manhattan 4); *EPA recommends four monocots in two families, including corn.*

Dicotyledonous species: Cucumber (*Cucumis sativus*, Family Cucurbitaceae; Straight Eight), Bean (*Phaseolus vulgaris*, Fabaceae; Dark Red Kidney), Oilseed rape (*Brassica napus*, Brassicaceae; 46A65), Soybean (*Glycine max*, Family Fabaceae, Williams 82), Sugarbeet (*Beta vulgaris*; not provided), and Tomato (*Lycopersicon esculentum*, Family Solanaceae, Rutgers); *EPA recommends six dicots in four families, including soybean and a root crop.*

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OECD recommends a minimum of three species selected for testing, at least one from each of the following categories: Category 1: ryegrass, rice, oat, wheat, and sorghum; Category 2: mustard, rape, radish, turnip, and Chinese cabbage; Category 3: vetch, mung bean, red clover, fenugreek, lettuce, and cress.

Seed source: Corn and oilseed rape obtained from Pioneer Hi-Bred International, Inc., Johnston, IA and Pioneer Hi-Bred Production, Ltd., Caledon, Ontario, Canada, respectively; oat obtained from Wilkens Seed Grains, Inc., Pontiac, IL; onion obtained from Wannamaker Seeds, St. Matthews, SC; ryegrass, bean, cucumber, and tomato obtained from Meyer Seed Co., Baltimore, MD; soybean obtained from Missouri Foundation Seeds, Columbia, MO; and sugarbeet obtained from Betaseed, Inc., Shakopee, MN.

Prior seed treatment/sterilization: Not reported.

Historical % germination of seed: Onion, >85%; ryegrass, 90%; oat, 84%; corn, 96%; oilseed rape, 100%; bean, 85%; cucumber, 85%; soybean, 94%; sugarbeet, 90%; and tomato, 85%

Seed storage, if any: Not reported.

B. STUDY DESIGN:

1. Experimental Conditions

- a. Limit test: N/A- test was conducted under Tier II conditions.
- b. Range-finding study: No range-finding data were provided.
- c. Definitive Study

Table 3: Experimental Parameters - Vegetative Vigor

Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
Duration of the test	21 Days	<i>Recommended test duration is 14-21 days.</i>
Number of seeds/plants replicate	4 plants per replicate	<i>Five plants per replicate are recommended.</i>
Number of plants retained after thinning	Three seeds were planted per test container, and the plants were thinned to one plant per test vessel to minimize competitive effects.	
<u>Number of replicates</u> Control: Adjuvant control: Treated:	5 5 5	<i>Four replicates per dose are recommended</i>

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Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
<u>Test concentrations (g ae/ha and lbs ae/A)</u> Nominal (reported): Nominal (reviewer-calculated and converted to lbs ae/A): Nominal (reviewer-calculated and converted to lbs form/A):	0 (negative and solvent controls), test levels ranging from 0.0086 to 400 g ae/ha, depending on the species tested 0 (negative and solvent controls), test levels ranging from 0.0000076 to 0.355 lbs ae/A, depending on the species tested 0 (negative and solvent controls), test levels ranging from 0.000010 to 0.464 lbs form/A, depending on the species tested *Refer to Excel attachment for detailed test concentrations for each species.	<hr/> Five test concentrations should be used with a dose range of 2X or 3X progression
<u>Method and interval of analytical verification</u> LOQ: LOD:	Samples from the primary stock solution (highest concentration spray mixture) on each day of test solution preparation, both controls, and calibration standards were analyzed prior to application using HPLC with UV (240 nm) detection. Not reported Set at the lowest analytical standard analyzed.	
Adjuvant (type, percentage, if used)	Tween 80, 0.25% v:v	Tween 80 is a non-ionic surfactant.
<u>Test container (pot)</u> Size/Volume Material: (glass/polystyrene)	Onion and ryegrass: 11 cm diameter, 10 cm depth All others: 16 cm diameter, 12 cm deep Plastic	<hr/> Non-porous containers should be used. OECD recommends that non-porous plastic or glazed pots be used.
Growth facility	Greenhouse	
Method/depth of seeding	Seeds were planted at a depth of 6 or 20 mm below the soil surface	

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Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
	depending on the species.	
<u>Test material application</u> Application time including the plant growth stage Number of application Application interval Method of application	Test material was applied to the foliage and soil surface on Day 0 to seedlings ranging in age from the 1-2, 2-3, or 3-6 leaf stage, depending on the species. 1 N/A; single application Automated laboratory track sprayer equipped with a Teejet 8002E nozzle.	
<u>Details of soil used</u> Geographic location Depth of soil collection Soil texture % sand % silt % clay pH: % organic carbon CEC Moisture at 1/3 atm (%)	Not reported Not reported Sandy loam 71% 18% 11% 6.6 (water) 0.6% 5.3 meq/100 g 9.0	Organic matter content: 1.1% pH (CaCl ₂): 6.3 Bulk density: 1.45 g/cm ³ Potassium: 31 ppm Magnesium: 61 ppm Calcium: 616 ppm Sodium: 11 ppm Topsoil was obtained from Chris Lee and Son, Inc., Easton, MD <i>EPA prefers soil mixes containing sandy loam, loam, or clay loam soil with no greater than 2% organic matter. Glass beads, rock wool, and 100% acid washed sand are not preferred.</i> <i>OECD prefers the soil to be sieved (0.5 cm) to remove coarse fragments. Carbon content should not exceed 1.5% (3% organic matter). Fine particles (under 20um) makeup should be between 10 and 20%. The recommended pH is between 5.0 and 7.5.</i>
Details of nutrient medium, if used	N/A; a nutrient medium was not used	
<u>Watering regime and schedules</u> Water source/type:	Domestic well water	

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Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
Volume applied: Interval of application: Method of application:	Not reported. Every 1 to 8 days. Plants were top-watered after application, and were watered by sub-irrigation thereafter.	<i>EPA prefers that under foliage watering or bottom watering be utilized for vegetative vigor studies so that the chemical is not washed out of the soil during the test.</i>
Any pest control method/fertilization, if used	None reported.	
<u>Test conditions</u> Temperature: Photoperiod: Light intensity and quality: Relative humidity:	All species except bean: 14.3-33.3°C Bean: 15.1-30.8°C 16L:8D Oat, onion, ryegrass, oilseed rape, and soybean: 12-17 moles PAR Corn, cucumber, sugarbeet, and tomato: 13-17 moles PAR Bean: 12-14.2 moles PAR Natural light augmented with high pressure sodium lamps All species except bean: 9.6-76.4% Bean: 9.8-88.3%	<i>EPA prefers that the cold vs warm loving plants be tested in two separate groups to optimize plant growth.</i> <i>OECD prefers that the temperature, humidity and light conditions be suitable for maintaining normal growth of each species for the test period.</i>
<u>Reference chemical (if used)</u> Name: Concentrations:	N/A N/A	A reference chemical was not used.
Other parameters, if any	None	

2. Observations:

Table 4: Observation Parameters - Vegetative Vigor

Parameters	Vegetative Vigor	
	Details	Remarks
Parameters measured (i.e., plant height, dry weight or other endpoints)	-Shoot height -Dry Weight -Phytotoxicity	

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	-Survival	
Measurement technique for each parameter	Phytotoxicity was determined by visual assessment. Shoot height measurement techniques were not reported. The shoot portion of each plant was removed at test termination and dried in an oven at <i>ca.</i> 80°C for a minimum of 2 days. The plants were cooled to room temperature before weight determination.	
Observation intervals	Phytotoxicity and shoot height were assessed on Days 7, 14, and 21. Dry weight and survival were assessed at study termination.	
Other observations, if any	None	
Were raw data included?	Yes	
Phytotoxicity rating system, if used	0 = no effect; 10= effects at the threshold of visual detection; 100 = complete plant mortality or defoliation	

II. RESULTS and DISCUSSION:

A. INHIBITORY EFFECTS:

Vegetative Vigor:

The study authors pooled the controls for all statistical analyses and inhibition calculations. The inhibition calculations were only included for select species.

For the endpoint survival, the study authors only reported inhibitions for bean, cucumber, soybean, sugarbeet, and tomato. Survival was 100% in the pooled controls. Reported inhibitions in survival were moderate for sugarbeet (40%) and moderately high in cucumber (65%). Inhibitions were very high in bean, tomato, and soybean (75%, 95, and 100%, respectively).

Based on the reviewer's calculations, survival in the negative control and solvent control was 100%. Inhibitions were calculated as compared to the negative control. There was no inhibition in survival for oat, oilseed rape, and ryegrass. Inhibitions were very low for corn and onion (5 and 15%, respectively). Inhibitions were moderate for sugarbeet (40%), and were moderately high for cucumber (65%). Inhibitions were very high in bean, tomato, and soybean (75, 95, and 100%, respectively). For those plant species that the study authors did evaluate, the results were the same as the reviewer's due to both the controls having 100% survival; thus, pooling the controls had no effect on inhibition calculations.

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For the endpoint shoot height, the study authors reported inhibitions for all species except onion and ryegrass. Reported inhibitions in shoot height were moderately low to moderate for all eight species that were evaluated (range 31% to 56%). Most species exhibited a dose-response relationship. All of the study authors' inhibition calculations were performed based on the pooled controls.

Based on the reviewer's calculations, inhibitions in shoot height were very low for ryegrass (5%) and low for onion (24%). Inhibitions were moderately low to moderate for all other species (range 31% to 57%). Most species that had moderate inhibitions exhibited a dose response relationship. The reviewer's results were very similar to the study authors'.

For the endpoint dry weight, the study authors reported inhibitions for all species except ryegrass. Reported inhibitions in dry weight were moderate for corn, oat, and oilseed rape (45%, 48, and 58%), and were high to very high for the other six species (range 74 to 100%). Most species exhibited a dose-response relationship.

The reviewer calculated inhibitions based on weight per plant, while the study authors calculated their inhibitions based on weight per replicate. As a consequence, the reviewer's results differed greatly from the study authors' results. Based on the reviewer's calculations, inhibitions in shoot dry weight were low for ryegrass (10%). Inhibitions were moderately high for corn, oat, and oilseed rape (40%, 51%, and 60%, respectively). Inhibitions were relatively high for onion and tomato (73% and 78%, respectively). Inhibitions were high for soybean, cucumber, sugarbeet, and bean (80%, 82%, 86%, and 87%, respectively). Most species exhibited a dose-response relationship.

There was chlorosis, leaf curl, mortality, necrosis, and stem curl at the higher treatment levels for most species tested. Ryegrass only had two affected replicates at the highest treatment level. Bean, sugarbeet, tomato, and soybean were affected at almost every test level.

The most sensitive monocot was onion, based on dry weight, with reported NOAEC and EC₂₅ values of 6.3 and 8.99 g ae/ha, respectively, which are equivalent to nominal values of 0.0056 and 0.00798 lbs ai/A. Based on shoot height, bean was the most sensitive dicot, with study author-reported NOAEC and EC₂₅ values of 0.02 and 0.0955 g ae/ha, respectively, equivalent to nominal values of 0.0000178 and 0.0000848 lbs ai/A.

B. REPORTED STATISTICS:

Mean dry weight, survival, and shoot height of the control and treatment groups were compared. The NOAEC was determined by using a Jonckheere-Terpstra trend test ($\alpha = 0.05$). Non-linear regression analysis was used to determine EC_x values and their 95% confidence levels when possible. Computations were performed on personal computers using commercially available software such as SAS version 8.

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Table 5: Reported effect of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) on Vegetative Vigor

Species	Results summary for dry weight per replicate (lbs ae/A)							
	g	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI
Corn	0.49-0.95	0.044	ND	N/A	0.118	0.0607-0.229	>0.355	N/A
Oat	0.56-1.07	0.044	ND	N/A	0.177	0.106-0.297	>0.355	N/A
Onion	0.01-0.04	0.0056	ND	N/A	0.008	0.0028-0.0228	0.0234	0.0126-0.0436
Ryegrass	0.18-0.26	0.178	ND	N/A	>0.355	N/A	>0.355	N/A
Bean	0.33-2.40	0.0001	ND	N/A	0.0007	0.0005-0.001	0.0015	0.0011-0.0018
Cucumber	0.33-1.71	0.0004	ND	N/A	0.0015	0.0008-0.0027	0.0041	0.0027-0.0061
Oilseed rape	0.41-0.95	0.0014	ND	N/A	0.0045	0.0013-0.0155	0.0226	0.0117-0.0434
Soybean	0.25-1.34	0.0002	ND	N/A	0.0013	0.0007-0.0025	0.0033	0.0021-0.0051
Sugarbeet	0.10-0.70	0.0002	ND	N/A	0.0008	0.0004-0.0014	0.0021	0.0015-0.0031
Tomato	0.20-0.89	0.0002	ND	N/A	0.0028	0.0013-0.0058	0.0051	0.0031-0.0084

N/A- Not Applicable

N.R.- Not Reported

Table 5a: Reported effect of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) on Vegetative Vigor

Species	Results summary for shoot height (lbs ae/A)							
	cm	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI
Corn	34.9-57.3	0.022	ND	N/A	0.0932	0.0437-0.201	>0.355	N/A
Oat	36.2-54.6	0.178	ND	N/A	0.298	0.243->0.355	>0.355	N/A
Onion	13.4-18.8	0.012	ND	N/A	>0.0888	N/A	>0.0888	N/A
Ryegrass	22.5-23.7	0.355	ND	N/A	>0.355	N/A	>0.355	N/A
Bean	9.0-19.5	0.00002	ND	N/A	0.0001	0.00002-0.0005	0.0021	0.0008-0.0054
Cucumber	7.3-12.1	0.012	ND	N/A	0.0224	0.0126-0.0397	>0.044	N/A
Oilseed rape	16.3-30.8	0.0004	ND	N/A	0.0007	<0.0004-0.0123	0.020	0.0037->0.044
Soybean	12.1-19.8	0.0004	ND	N/A	0.0040	0.0010-0.0163	>0.067	N/A
Sugarbeet	11.1-16.0	0.0004	ND	N/A	0.0095	0.0055-0.0163	>0.012	N/A
Tomato	7.5-19.0	0.0028	ND	N/A	0.0027	0.0008-0.0086	0.0119	0.0064-0.0224

N/A- Not Applicable

N.R.- Not Reported

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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Table 5b: Reported effect of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) on Vegetative Vigor

Species	Results summary for survival (lbs ae/A)							
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI
Corn	95-100	0.178	ND	N/A	>0.355	N/A	>0.355	N/A
Oat	100	0.355	ND	N/A	>0.355	N/A	>0.355	N/A
Onion	85-100	0.012	ND	N/A	>0.0888	N/A	>0.0888	N/A
Ryegrass	100	0.355	ND	N/A	>0.355	N/A	>0.355	N/A
Bean	25-100	0.0044	ND	N/A	0.0076	0.0076-0.0076	0.0082	0.0082-0.0082
Cucumber	35-100	0.012	ND	N/A	0.0227	0.0211-0.0244	0.0346	0.0333-0.0361
Oilseed rape	100	0.044	ND	N/A	>0.044	N/A	>0.044	N/A
Soybean	0-100	0.0111	N.R.	N.R.	0.0152	0.0151-0.0154	0.0188	0.0187-0.0189
Sugarbeet	60-100	0.0056	N.R.	N.R.	0.0115	0.0115-0.0115	>0.012	N/A
Tomato	5-100	0.0056	N.R.	N.R.	0.0111	0.0107-0.0115	0.0136	0.0132-0.0139

N/A- Not Applicable
N.R.- Not Reported

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Plant Injury Index											
Control	Solvent	Corn	Oat	Onion	Ryegrass	Bean	Cucumber	Oilseed rape	Soybean	Sugarbeet	Tomato
99-100	100	62-100	85-100	52-100	99-100	3-100	10-100	44-100	0-100	15-94	2-99

0% = plant death or near death; 100 = no visual response

C. VERIFICATION OF STATISTICAL RESULTS BY THE REVIEWER:

Statistical Method(s): Any species exhibiting an inhibition of $\geq 5\%$ relative to the negative control based on % survival, dry weight or shoot height was statistically analyzed. The toxicity values were visually determined when inhibitions did not exceed 5% for a given endpoint. All analyses were conducted using the negative control only. The reviewer first compared the negative and solvent controls using Toxstat or Excel, and dropped the solvent control from all analyses regardless of the outcome. The reviewer tested each data set for normality using the Chi-square and Shapiro-Wilks tests and for homogeneity of variance using the Hartley and Bartlett's tests. If the data met these assumptions of ANOVA, the NOAEC value was determined using the parametric Dunnett's test (of Bonferonni's test for unequal replicates) and Williams' test. If the data did not meet these assumptions, the NOAEC value was determined using the non-parametric Kruskal-Wallis test. In all cases, the reviewer also compared the dose-response pattern (as determined by the % inhibitions) to the output of the statistical tests to determine if biological significance existed in the absence of statistical significance. These analyses were conducted using Toxstat statistical software. The reviewer then attempted to determine the ECx values, 95% confidence intervals and slopes using the probit analysis via Nuthatch statistical software. All analyses were conducted using the nominal reviewer-converted application rates of lbs acid equivalent per acre (lbs ae/A). Dry weight data values were multiplied by 100 or 1,000 and entered into Toxstat to eliminate means with a zero value.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Table 6: Effect of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) on Vegetative Vigor

Species	Results summary for dry weight (lbs ae/A)									
	g	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	Slope	St error
Corn	0.49-0.95	0.044	0.021	0.0065-0.067	0.13	0.085-0.21	>0.355	N/A	1.21	0.269
Oat	0.56-1.07	<0.0028	0.033	0.0089-0.12	0.16	0.094-0.26	>0.355	N/A	1.44	0.421
Onion	0.01-0.04	0.0028	0.00073	NC	0.0058	0.0019-0.017	0.024	0.013-0.046	1.08	0.226
Ryegrass	0.18-0.26	0.355	>0.355	N/A	>0.355	N/A	>0.355	N/A	N/A	N/A
Bean	0.33-2.40	0.00014	0.00011	0.00006-0.0002	0.00048	0.00033-0.00069	0.0014	0.0011-0.0017	1.50	0.125
Cucumber	0.33-1.71	0.00035	<0.00035	N/A	0.00098	0.00055-0.0017	0.0039	0.0026-0.0056	1.14	0.0975
Oilseed rape	0.41-0.95	0.0014	<0.00035	N/A	0.0036	0.0012-0.011	0.02	0.011-0.036	0.899	0.191
Soybean	0.25-1.34	0.000068	0.000074	0.00004-0.00013	0.00064	0.00044-0.00092	0.0029	0.0023-0.0036	1.04	0.0606
Sugarbeet	0.10-0.70	0.00018	0.000099	NC	0.00056	0.00034-0.00091	0.0019	0.0014-0.0025	1.29	0.117
Tomato	0.20-0.89	0.00018	0.000077	NC	0.00073	0.00035-0.0015	0.0037	0.0025-0.0055	0.957	0.129

N/A- Not Applicable

NC – Not calculable

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Table 6a: Effect of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) on Vegetative Vigor

Species	Results summary for shoot height (lbs ae/A)									
	cm	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	Slope	St error
Corn	34.9-57.3	0.012	0.0071	0.003-0.017	0.096	0.068-0.13	>0.355	N/A	0.860	0.0998
Oat	36.2-54.6	0.0888	0.11	0.071-0.18	0.30	0.25-0.34	>0.355	N/A	2.34	0.495
Onion	13.4-18.8	0.012	0.006	0.0017-0.021	0.061	NC	>0.0888	N/A	0.967	0.227
Ryegrass	22.5-23.7	0.355	>0.355	N/A	>0.355	N/A	>0.355	N/A	N/A	N/A
Bean	9.0-19.5	<0.000018	<0.000018	N/A	0.000075	0.000029-0.00019	0.0018	0.0011-0.003	0.489	0.0444
Cucumber	7.3-12.1	0.0056	0.0041	0.0017-0.01	0.023	0.016-0.031	>0.044	N/A	1.31	0.262
Oilseed rape	16.3-30.8	0.00035	<0.00035	N/A	0.0004	NC	0.014	0.0059-0.035	0.435	0.0688
Soybean	12.1-19.8	0.0002	0.000008	0.000001-0.00063	0.0038	0.0017-0.0084	>0.022	N/A	0.580	0.104
Sugarbeet	11.1-16.0	0.00069	0.0007	0.00018-0.0028	0.0095	NC	>0.012	N/A	0.858	0.201
Tomato	7.5-19.0	0.0014	0.00073	0.00042-0.0013	0.003	0.0023-0.004	0.0082	0.007-0.0096	1.57	0.171

N/A- Not Applicable

NC – Not calculable

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PMRA Submission Number N/A

EPA MRID Number 47560133

Table 6b: Effect of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) on Vegetative Vigor

Species	Results summary for survival (lbs ae/A)									
	%	NOAEC	EC ₀₅	95%CI	EC ₂₅	95%CI	EC ₅₀	95%CI	Slope	St error
Corn	95-100	0.355	>0.355	N/A	>0.355	N/A	>0.355	N/A	N/A	N/A
Oat	100	0.355	>0.355	N/A	>0.355	N/A	>0.355	N/A	ND	ND
Onion	85-100	0.012	>0.012	N/A	>0.0888	N/A	>0.0888	N/A	N/A	N/A
Ryegrass	100	0.355	>0.355	N/A	>0.355	N/A	>0.355	N/A	ND	ND
Bean	25-100	0.004	>0.004	N/A	>0.004	N/A	<0.0089	N/A	N/A	N/A
Cucumber	35-100	0.012	0.012	0.0084-0.018	0.023	0.018-0.028	0.034	0.031-0.039	3.72	0.608
Oilseed rape	100	0.044	>0.044	N/A	>0.044	N/A	>0.044	N/A	ND	ND
Soybean	0-100	0.012	>0.012	N/A	>0.012	N/A	<0.022	N/A	N/A	N/A
Sugarbeet	60-100	0.0056	>0.0056	N/A	>0.0056	N/A	>0.012	N/A	N/A	N/A
Tomato	5-100	0.0056	0.0088	0.0075-0.01	0.012	0.01-0.013	0.014	0.013-0.015	8.27	0.892

N/A- Not Applicable
 NC -- Not calculable

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Plant Injury Index											
Control	Solvent	Corn	Oat	Onion	Ryegrass	Bean	Cucumber	Oilseed rape	Soybean	Sugarbeet	Tomato
99-100	100	62-100	85-100	52-100	99-100	3-100	10-100	44-100	0-100	15-94	2-99

0% = plant death or near death; 100 = no visual response

Aminocyclopyrachlor acid

Monocot

EC₀₅/IC₀₅: 0.00073 lbs ae/A 95% C.I.: N/A
 EC₂₅/IC₂₅: 0.0058 lbs ae/A 95% C.I.: 0.0019-0.017 lbs ae/A
 EC₅₀/IC₅₀: 0.024 lbs ae/A 95% C.I.: 0.013-0.046 lbs ae/A
 NOAEC: 0.0028 lbs ae/A
 Slope: 1.08
 Std err: 0.226
 Most sensitive monocot: Onion
 Most sensitive parameter: Dry Weight

Dicot

EC₀₅/IC₀₅: <0.000018 lbs ae/A 95% C.I.: N/A
 EC₂₅/IC₂₅: 0.000075 lbs ae/A 95% C.I.: 0.000029-0.00019 lbs ae/A
 EC₅₀/IC₅₀: 0.0018 lbs ae/A 95% C.I.: 0.0011-0.003 lbs ae/A
 NOAEC: <0.000018 lbs ae/A
 Slope: 0.489
 Std err: 0.0444
 Most sensitive dicot: Bean
 Most sensitive parameter: Shoot height

Aminocyclopyrachlor Methyl Ester

Monocot

EC₀₅/IC₀₅: 0.00078 lbs me/A 95% C.I.: N/A
 EC₂₅/IC₂₅: 0.0062 lbs me/A 95% C.I.: 0.002-0.018 lbs me/A
 EC₅₀/IC₅₀: 0.026 lbs me/A 95% C.I.: 0.014-0.049 lbs me/A
 NOAEC: 0.003 lbs me/A
 Slope: 1.12
 Std err: 0.485
 Most sensitive monocot: Onion
 Most sensitive parameter: Dry Weight

Dicot

EC₀₅/IC₀₅: <0.000019 lbs me/A 95% C.I.: N/A
 EC₂₅/IC₂₅: 0.00008 lbs me/A 95% C.I.: 0.000031-0.0002 lbs me/A
 EC₅₀/IC₅₀: 0.0019 lbs me/A 95% C.I.: 0.0012-0.003 lbs me/A
 NOAEC: <0.000019 lbs me/A
 Slope: 0.852
 Std err: 0.170
 Most sensitive dicot: Bean
 Most sensitive parameter: Shoot height

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DPX-KJM44 80WG

Monocot

EC₀₅/IC₀₅: 0.001 lbs form/A 95% C.I.: N/A
EC₂₅/IC₂₅: 0.0076 lbs form/A 95% C.I.: 0.0025-0.022 lbs form/A
EC₅₀/IC₅₀: 0.031 lbs form/A 95% C.I.: 0.017-0.06 lbs form/A
NOAEC: 0.0037 lbs form/A
Slope: 1.12
Std err: 0.485
Most sensitive monocot: Onion
Most sensitive parameter: Dry Weight

Dicot

EC₀₅/IC₀₅: 0.000024 lbs form/A 95% C.I.: N/A
EC₂₅/IC₂₅: 0.0001 lbs form/A 95% C.I.: 0.000038-0.00025 lbs form/A
EC₅₀/IC₅₀: 0.0024 lbs form/A 95% C.I.: 0.0014-0.004 lbs form/A
NOAEC: 0.000024 lbs form/A
Slope: 0.852
Std err: 0.170
Most sensitive dicot: Bean
Most sensitive parameter: Shoot height

D. STUDY DEFICIENCIES:

There were no study deficiencies.

E. REVIEWER'S COMMENTS:

The reviewer's results were determined by comparing treatment data to the negative control only and using the nominal application rates. The study authors determined the toxicity values by comparing treatment data to the pooled controls. Additionally, the study authors analyzed dry weight based on total replicate weight, rather than average plant weight per replicate (taking into account surviving plants per replicate). Therefore, the reviewer's results are reported in the Executive Summary and Conclusions sections of this DER. Despite differences in analysis, the reviewer's results were the same as the study authors' with regard to the most sensitive monocot and dicot species. In both cases, the reviewer's EC₂₅ values for both the most sensitive monocot and dicot species were more conservative than the study authors'.

The reviewer detected no statistically significant differences between the two controls for any endpoint of any species.

Almost every plant species tested had its own range of different test concentrations, with 9 to 10 test levels per species tested. The reviewer converted the study author-reported nominal concentrations in g ae/ha to lbs ae/A for statistical analyses.

The reviewer converted the toxicity values for the most sensitive species and endpoints from lbs acid equivalent/A to lbs formulation/A and lbs methyl ester/A and reported the summary toxicity values for the most monocot and dicot species in terms of all three in the Results and Executive Summary sections of this DER.

For soybean dry weight, the highest treatment level was dropped from analysis due to no surviving plants.

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For tomato dry weight, the highest treatment group was dropped from analysis due to there only being 1 plant remaining in the single replicate that survived.

For corn shoot height and dry weight, the reviewer dropped the lowest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The lowest treatment level had actual promotion of growth, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This lowest treatment level was manually added back into the original data file which was used to determine ECx values in Nuthatch.

For bean dry weight, the reviewer dropped the lowest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The lowest treatment level had an inhibition of 3%, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This lowest treatment level was manually added back into the original data file which was used to determine ECx values in Nuthatch.

For tomato height, the highest treatment group was dropped from analysis due to there only being 1 plant remaining in the single replicate that survived. William's test detected significant differences at almost every treatment level due to statistically significant promotion of growth. The reviewer used the results of Dunnett's test to determine the NOAEC.

For bean shoot height, the reviewer then dropped the highest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The highest treatment level had inhibitions similar to the treatment level just below it, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This highest treatment level was manually added back into the original file and the adjusted file was used to determine ECx values in Nuthatch.

For the endpoint survival, the reviewer did not compare the negative and solvent control due to there being 100% survival in both controls across all species.

For bean survival, the reviewer dropped the lowest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The lowest treatment level had no inhibitions in survival, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This lowest treatment level was manually added back into the original file and the adjusted file was used to determine ECx values in Nuthatch. The reviewer could not determine ECx values using Nuthatch because the data lacked 3 or more distinct isotone means and was thus not suitable for the probit model fit. The reviewer visually determined ECx values for this endpoint.

For corn survival, the reviewer dropped the lowest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The lowest treatment level had no inhibitions in survival, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This lowest treatment level was manually added back into the original file, although the data was not analyzed via Nuthatch for ECx values.

For cucumber survival, the data did not pass the tests for normality or homogeneity of variance, therefore the data was analyzed using Steels test and the Kruskal-Wallis test. The Steels test only detected significance at the

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highest treatment level, and the Kruskal-Wallis test did not detect an effect at any test level. Therefore, the reviewer visually determined the NOAEC value.

For onion and sugarbeet survival, the data did not pass the tests for normality or homogeneity of variance, therefore the data was analyzed using Steels test and the Kruskal-Wallis test. Neither test detected significance at any test level. Therefore, the reviewer visually determined the NOAEC value.

For soybean survival, the reviewer dropped the lowest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The lowest treatment level had no inhibitions in survival, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This lowest treatment level was manually added back into the original file and the adjusted file was used to determine ECx values in Nuthatch. The reviewer could not determine ECx values using Nuthatch because the data had a singular matrix and was thus not suitable for the probit model fit. The reviewer visually determined ECx values for this endpoint.

For tomato survival, the reviewer dropped the lowest treatment level from analysis of the data in Toxstat in order to obtain the maximum of 10 treatment groups that can be analyzed at any one time. This procedure was only employed for the determination of the NOAEC value. The lowest treatment level had no inhibitions in survival, and was far from the reviewer's visual assessment of where the NOAEC might lie, which allowed the reviewer to justify dropping it from the NOAEC determination analysis. This lowest treatment level was manually added back into the original file, although the data was not analyzed via Nuthatch for ECx values. The data did not pass the tests for normality or homogeneity of variance, therefore the data were analyzed using Steels test and the Kruskal-Wallis test. Only the Steels test detected significance, but only at the highest test level. The reviewer visually determined the NOAEC value.

The study authors analyzed dry weight per replicate, while the reviewer converted dry weight per replicate to dry weight per plant and used those numbers for statistical analyses.

F. CONCLUSIONS:

This study is scientifically sound and classified as acceptable. Onion was the most sensitive monocot, based on dry weight, with NOAEC and EC₂₅ values of 0.0028 and 0.0058 lbs ae/A, respectively. Bean was the most sensitive dicot, based on shoot height, with NOAEC and EC₂₅ values of <0.000018 and 0.000075 lbs ae/A, respectively.

Most sensitive monocot and EC₂₅: Onion (Dry Weight), 0.0058 lbs ae/A

Most sensitive dicot and EC₂₅: Bean (Shoot Height), 0.000075 lbs ae/A

III. REFERENCES:

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U.S. Environmental Protection Agency, "Pesticide Assessment Guidelines, Subdivision J, Hazard Evaluation, Nontarget Plants", 22 October 1982.

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PMRA Submission Number N/A

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Frans, Robert E., and Talbert, R.E., Design of Field Experiments and the Measurement and Analysis of Plant Responses. Pages 15-23 in B. Truelove, ed. *Research Methods in Weed Science*. Southern Weed Society, Auburn University, Alabama, 1977.

SAS Institute, Inc. 1999. SAS/STAT User's Guide, Version 8. Cary, NC, SAS Institute, Inc.

APPENDIX I. OUTPUT OF REVIEWER'S STATISTICAL VERIFICATION:

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	1.8400	CALCULATED t VALUE =	0.5813
GRP2 (BLANK CRTL) MEAN =	1.8020	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.0380		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	2.948	10.648	16.808	10.648	2.948
OBSERVED	0	13	16	14	1

Calculated Chi-Square goodness of fit test statistic = 5.8488
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.657

W = 0.971

Critical W (P = 0.05) (n = 44) = 0.944
Critical W (P = 0.01) (n = 44) = 0.924

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Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 32.11
Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
Actual values ==> R (# groups) = 9, df (# avg reps-1) = 3.89
(average df used)

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 15.44
Table Chi-square value = 20.09 (alpha = 0.01)
Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 3.89
Used for Chi-square table value ==> df (#groups-1) = 8

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE DF SS MS F

Between 8 14.962 1.870 98.421
Within (Error) 35 0.657 0.019

Total 43 15.619

Critical F value = 2.27 (0.05,8,30)

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Since $F > \text{Critical } F$ REJECT H_0 : All groups equal

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 1 OF 2 Ho: Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	1.840	1.840		
2	0.00035	1.712	1.712	1.468	
3	0.00069	1.594	1.594	2.822	*
4	0.0014	1.602	1.602	2.730	*
5	0.0028	0.980	0.980	9.865	*
6	0.0056	0.738	0.738	12.641	*
7	0.012	0.470	0.470	15.715	*
8	0.022	0.352	0.352	17.069	*
9	0.044	0.330	0.330	16.330	*

Bonferroni T table value = 2.63 (1 Tailed Value, P=0.05, df=35,8)

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 2 OF 2 Ho: Control < Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.00035	5	0.230	12.5	0.128
3	0.00069	5	0.230	12.5	0.246
4	0.0014	5	0.230	12.5	0.238
5	0.0028	5	0.230	12.5	0.860
6	0.0056	5	0.230	12.5	1.102
7	0.012	5	0.230	12.5	1.370
8	0.022	5	0.230	12.5	1.488
9	0.044	4	0.244	13.2	1.510

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
File: 0133cw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	1.840	1.840	1.840
2	0.00035	5	1.712	1.712	1.712
3	0.00069	5	1.594	1.594	1.598
4	0.0014	5	1.602	1.602	1.598
5	0.0028	5	0.980	0.980	0.980
6	0.0056	5	0.738	0.738	0.738
7	0.012	5	0.470	0.470	0.470
8	0.022	5	0.352	0.352	0.352

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

9 0.044 4 0.330 0.330 0.330

Aminocyclopyrachlor acid & cucumber 21-day dry weight;g
 File: 0133cw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	1.840				
0.00035	1.712	1.477		1.69	k= 1, v=35
0.00069	1.598	2.793	*	1.77	k= 2, v=35
0.0014	1.598	2.793	*	1.79	k= 3, v=35
0.0028	0.980	9.925	*	1.80	k= 4, v=35
0.0056	0.738	12.718	*	1.81	k= 5, v=35
0.012	0.470	15.811	*	1.82	k= 6, v=35
0.022	0.352	17.173	*	1.82	k= 7, v=35
0.044	0.330	16.430	*	1.82	k= 8, v=35

s = 0.137

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00014	5.6E-05	0.00034	0.19	0.41
EC10	0.00029	0.00013	0.00062	0.17	0.46
EC25	0.00098	0.00055	0.0017	0.12	0.56
EC50	0.0039	0.0026	0.0056	0.081	0.69

Slope = 1.14 Std.Err. = 0.0975

!!!Poor fit: p < 0.001 based on DF= 6.00 35.0

0133CW : Aminocyclopyrachlor acid & cucumber 21-day dry weight;g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	1.84	1.93	-0.0930	100.	0.00
0.000350	5.00	1.71	1.70	0.00765	88.2	11.8
0.000690	5.00	1.59	1.55	0.0436	80.2	19.8
0.00140	5.00	1.60	1.34	0.265	69.2	30.8
0.00280	5.00	0.980	1.09	-0.108	56.3	43.7
0.00560	5.00	0.738	0.826	-0.0881	42.7	57.3
0.0120	5.00	0.470	0.557	-0.0870	28.8	71.2
0.0220	5.00	0.352	0.378	-0.0260	19.6	80.4
0.0440	4.00	0.330	0.223	0.107	11.5	88.5

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORM

t-test of Solvent and Blank Controls

Ho: GRP1 MEAN = GRP2 MEAN

```

-----
GRP1 (SOLVENT CRTL) MEAN =      1.1520      CALCULATED t VALUE =      1.3312
GRP2 (BLANK CRTL) MEAN   =      0.9860      DEGREES OF FREEDOM =      8
DIFFERENCE IN MEANS     =      0.1660
-----
TABLE t VALUE (0.05 (2), 8) =  2.306      NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) =  3.355      NO significant difference at alpha=0.01
    
```

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

```

-----
INTERVAL      <-1.5      -1.5 to <-0.5      -0.5 to 0.5      >0.5 to 1.5      >1.5
-----
EXPECTED      3.015          10.890          17.190          10.890          3.015
OBSERVED      1              12              16              16              0
-----
    
```

Calculated Chi-Square goodness of fit test statistic = 6.9550
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.751

W = 0.967

Critical W (P = 0.05) (n = 45) = 0.945
Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 641.70
Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Data FAIL homogeneity test. Try another transformation.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 34.43
Table Chi-square value = 20.09 (alpha = 0.01)
Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
Used for Chi-square table value ==> df (#groups-1) = 8

Data FAIL homogeneity test at 0.01 level. Try another transformation.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	1.152				
2	0.0028	0.884	20.00	16.00	5.00	
3	0.0056	1.068	26.00	16.00	5.00	
4	0.012	0.958	21.00	16.00	5.00	
5	0.022	0.994	20.00	16.00	5.00	
6	0.044	0.930	20.00	16.00	5.00	
7	0.0888	0.868	20.00	16.00	5.00	
8	0.178	0.768	17.00	16.00	5.00	
9	0.355	0.562	15.00	16.00	5.00	*

Critical values use k = 8, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & oat 21-day weight; g
File: 0133aw Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	1.152	1.152	176.000
2	0.0028	0.884	0.884	105.500

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number	N/A	EPA MRID Number 47560133			
3	0.0056	1.068	1.068	1.068	179.000
4	0.012	0.958	0.958	0.958	133.500
5	0.022	0.994	0.994	0.994	150.000
6	0.044	0.930	0.930	0.930	111.000
7	0.0888	0.868	0.868	0.868	103.000
8	0.178	0.768	0.768	0.768	59.000
9	0.355	0.562	0.562	0.562	18.000

Calculated H Value = 25.806 Critical H Value Table = 15.510
 Since Calc H > Crit H REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & oat 21-day weight; g
 File: 0133aw Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP														
				9	8	7	2	6	4	5	3	1						
9	0.355	0.562	0.562	\														
8	0.178	0.768	0.768	. \														
7	0.0888	0.868	0.868	. . \														
2	0.0028	0.884	0.884	. . . \														
6	0.044	0.930	0.930 \														
4	0.012	0.958	0.958 \														
5	0.022	0.994	0.994 \														
3	0.0056	1.068	1.068	* \														
1	Neg control	1.152	1.152	* \														

* = significant difference (p=0.05) . = no significant difference
 Table q value (0.05,9) = 3.197 SE = 8.303

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.033	0.0089	0.12	0.28	0.27
EC10	0.060	0.022	0.16	0.21	0.37
EC25	0.16	0.094	0.26	0.11	0.60
EC50	0.46	0.29	0.75	0.10	0.62

Slope = 1.44 Std.Err. = 0.421

Goodness of fit: p = 0.18 based on DF= 6.0 36.

0133AW : Aminocyclopyrachlor acid & oat 21-day weight; g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	1.15	1.02	0.132	100.	0.00
0.00280	5.00	0.884	1.02	-0.135	99.9	0.0705
0.00560	5.00	1.07	1.02	0.0511	99.7	0.290
0.0120	5.00	0.958	1.01	-0.0504	98.9	1.12

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A					EPA MRID Number 47560133	
0.0220	5.00	0.994	0.991	0.00320	97.2	2.85
0.0440	5.00	0.930	0.948	-0.0177	92.9	7.07
0.0888	5.00	0.868	0.866	0.00236	84.9	15.1
0.178	5.00	0.768	0.739	0.0291	72.5	27.5
0.355	5.00	0.562	0.577	-0.0147	56.5	43.5

!!!Warning: EC50 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CTRL) MEAN =	1.0380	CALCULATED t VALUE =	0.6171
GRP2 (BLANK CTRL) MEAN =	0.9480	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.0900		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
 TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	2.948	10.648	16.808	10.648	2.948
OBSERVED	2	9	22	8	3

Calculated Chi-Square goodness of fit test statistic = 2.8232
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.880

W = 0.965

Critical W (P = 0.05) (n = 44) = 0.944
 Critical W (P = 0.01) (n = 44) = 0.924

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Hartley test for homogeneity of variance

 Calculated H statistic (max Var/min Var) = 23.63
 Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)
 Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
 Actual values ==> R (# groups) = 9, df (# avg reps-1) = 3.89
 (average df used)

 Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 12.04
 Table Chi-square value = 20.09 (alpha = 0.01)
 Table Chi-square value = 15.51 (alpha = 0.05)
 Average df used in calculation ==> df (avg n - 1) = 3.89
 Used for Chi-square table value ==> df (#groups-1) = 8

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	1.917	0.240	9.600
Within (Error)	35	0.880	0.025	
Total	43	2.797		

Critical F value = 2.27 (0.05,8,30)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	1.038	1.038		
2	0.00035	0.948	0.948	0.900	
3	0.00069	0.890	0.890	1.480	
4	0.0014	0.904	0.904	1.340	
5	0.0028	0.720	0.720	3.180	*
6	0.0056	0.810	0.810	2.280	
7	0.012	0.598	0.598	4.400	*
8	0.022	0.432	0.432	6.060	*
9	0.044	0.415	0.415	5.874	*

Bonferroni T table value = 2.63 (1 Tailed Value, P=0.05, df=35,8)

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.00035	5	0.263	25.4	0.090
3	0.00069	5	0.263	25.4	0.148
4	0.0014	5	0.263	25.4	0.134
5	0.0028	5	0.263	25.4	0.318
6	0.0056	5	0.263	25.4	0.228
7	0.012	5	0.263	25.4	0.440
8	0.022	5	0.263	25.4	0.606
9	0.044	4	0.279	26.9	0.623

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	1.038	1.038	1.038
2	0.00035	5	0.948	0.948	0.948
3	0.00069	5	0.890	0.890	0.897
4	0.0014	5	0.904	0.904	0.897
5	0.0028	5	0.720	0.720	0.765
6	0.0056	5	0.810	0.810	0.765
7	0.012	5	0.598	0.598	0.598
8	0.022	5	0.432	0.432	0.432
9	0.044	4	0.415	0.415	0.415

Aminocyclopyrachlor acid & oilseed rape 21-day weight;g
 File: 0133rw Transform: NO TRANSFORMATION

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	1.038				
0.00035	0.948	0.897		1.69	k= 1, v=35
0.00069	0.897	1.406		1.77	k= 2, v=35
0.0014	0.897	1.406		1.79	k= 3, v=35
0.0028	0.765	2.722	*	1.80	k= 4, v=35
0.0056	0.765	2.722	*	1.81	k= 5, v=35
0.012	0.598	4.388	*	1.82	k= 6, v=35
0.022	0.432	6.043	*	1.82	k= 7, v=35
0.044	0.415	5.857	*	1.82	k= 8, v=35

s = 0.159

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00030	3.7E-05	0.0024	0.45	0.12
EC10	0.00076	0.00014	0.0042	0.37	0.18
EC25	0.0036	0.0012	0.011	0.24	0.33
EC50	0.020	0.011	0.036	0.13	0.55

Slope = 0.899 Std.Err. = 0.191

Goodness of fit: p = 0.44 based on DF= 6.0 35.

0133RW : Aminocyclopyrachlor acid & oilseed rape 21-day weight;g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	1.04	1.02	0.0183	100.	0.00
0.000350	5.00	0.948	0.962	-0.0138	94.3	5.67
0.000690	5.00	0.890	0.924	-0.0341	90.6	9.38
0.00140	5.00	0.904	0.868	0.0360	85.1	14.9
0.00280	5.00	0.720	0.795	-0.0750	78.0	22.0
0.00560	5.00	0.810	0.705	0.105	69.2	30.8
0.0120	5.00	0.598	0.592	0.00619	58.0	42.0
0.0220	5.00	0.432	0.496	-0.0641	48.7	51.3
0.0440	4.00	0.415	0.388	0.0271	38.0	62.0

!!!Warning: EC5 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & onion 21-day weight; g
File: 0133ow Transform: NO TRANSFORM

t-test of Solvent and Blank Controls		Ho:GRP1 MEAN = GRP2 MEAN	
GRP1 (SOLVENT CRTL) MEAN =	0.0440	CALCULATED t VALUE =	1.7678
GRP2 (BLANK CRTL) MEAN =	0.0340	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.0100		

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
 TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & onion 21-day weight; g
 File: 0133ow Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	0	14	14	15	2

Calculated Chi-Square goodness of fit test statistic = 6.3880
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & onion 21-day weight; g
 File: 0133ow Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.002

W = 0.889

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & onion 21-day weight; g
 File: 0133ow Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 6.50
 Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
 Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

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as an approximate test (average df are used).

Aminocyclopyrachlor acid & onion 21-day weight; g
 File: 0133ow Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 7.50
 Table Chi-square value = 20.09 (alpha = 0.01)
 Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 8

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & onion 21-day weight; g
 File: 0133ow Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	0.0058	0.0007	7.000
Within (Error)	36	0.0022	0.0001	
Total	44	0.0080		

Critical F value = 2.27 (0.05,8,30)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & onion 21-day weight; g
 File: 0133ow Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	0.044	0.044		
2	0.00069	0.044	0.044	0.000	
3	0.0014	0.044	0.044	0.000	
4	0.0028	0.036	0.036	1.265	
5	0.0056	0.032	0.032	1.897	
6	0.012	0.032	0.032	1.897	
7	0.022	0.024	0.024	3.162	*
8	0.044	0.014	0.014	4.743	*
9	0.0888	0.014	0.014	4.743	*

Dunnnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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Aminocyclopyrachlor acid & onion 21-day weight; g
File: 0133ow Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.00069	5	0.016	35.9	0.000
3	0.0014	5	0.016	35.9	0.000
4	0.0028	5	0.016	35.9	0.008
5	0.0056	5	0.016	35.9	0.012
6	0.012	5	0.016	35.9	0.012
7	0.022	5	0.016	35.9	0.020
8	0.044	5	0.016	35.9	0.030
9	0.0888	5	0.016	35.9	0.030

Aminocyclopyrachlor acid & onion 21-day weight; g
File: 0133ow Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	0.044	0.044	0.044
2	0.00069	5	0.044	0.044	0.044
3	0.0014	5	0.044	0.044	0.044
4	0.0028	5	0.036	0.036	0.036
5	0.0056	5	0.032	0.032	0.032
6	0.012	5	0.032	0.032	0.032
7	0.022	5	0.024	0.024	0.024
8	0.044	5	0.014	0.014	0.014
9	0.0888	5	0.014	0.014	0.014

Aminocyclopyrachlor acid & onion 21-day weight; g
File: 0133ow Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	0.044				
0.00069	0.044	0.000		1.69	k= 1, v=36
0.0014	0.044	0.000		1.77	k= 2, v=36
0.0028	0.036	1.633		1.79	k= 3, v=36
0.0056	0.032	2.449	*	1.80	k= 4, v=36
0.012	0.032	2.449	*	1.81	k= 5, v=36
0.022	0.024	4.082	*	1.82	k= 6, v=36
0.044	0.014	6.124	*	1.82	k= 7, v=36
0.0888	0.014	6.124	*	1.82	k= 8, v=36

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

s = 0.008

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00073	0.00011	0.0050	0.41	0.15
EC10	0.0016	0.00032	0.0080	0.35	0.20
EC25	0.0058	0.0019	0.017	0.24	0.33
EC50	0.024	0.013	0.046	0.14	0.53

Slope = 1.08 Std.Err. = 0.226

Goodness of fit: p = 0.64 based on DF= 6.0 36.

01330W : Aminocyclopyrachlor acid & onion 21-day weight; g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	0.0440	0.0453	-0.00127	100.	0.00
0.000690	5.00	0.0440	0.0431	0.000865	95.3	4.72
0.00140	5.00	0.0440	0.0412	0.00280	91.0	9.01
0.00280	5.00	0.0360	0.0383	-0.00225	84.5	15.5
0.00560	5.00	0.0320	0.0342	-0.00217	75.5	24.5
0.0120	5.00	0.0320	0.0285	0.00348	63.0	37.0
0.0220	5.00	0.0240	0.0235	0.000513	51.9	48.1
0.0440	5.00	0.0140	0.0177	-0.00367	39.0	61.0
0.0888	5.00	0.0140	0.0123	0.00170	27.2	72.8

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 01331w Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	0.2040	CALCULATED t VALUE =	-1.6823
GRP2 (BLANK CRTL) MEAN =	0.2640	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	-0.0600		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 01331w Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	3	10	18	12	2

Calculated Chi-Square goodness of fit test statistic = 0.5658
Table Chi-Square value (alpha = 0.01) = 13.277

**Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE:
Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number N/A

EPA MRID Number 47560133

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.064

W = 0.977

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 3.16

Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4

Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 2.62

Table Chi-square value = 20.09 (alpha = 0.01)

Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00

Used for Chi-square table value ==> df (#groups-1) = 8

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	0.023	0.003	1.500
Within (Error)	36	0.064	0.002	
Total	44	0.087		

Critical F value = 2.27 (0.05,8,30)
Since F < Critical F FAIL TO REJECT Ho:All groups equal

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	0.204	0.204		
2	0.0028	0.224	0.224	-0.707	
3	0.0056	0.240	0.240	-1.273	
4	0.012	0.214	0.214	-0.354	
5	0.022	0.260	0.260	-1.980	
6	0.044	0.230	0.230	-0.919	
7	0.0888	0.228	0.228	-0.849	
8	0.178	0.186	0.186	0.636	
9	0.355	0.190	0.190	0.495	

Dunnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0028	5	0.071	34.7	-0.020
3	0.0056	5	0.071	34.7	-0.036
4	0.012	5	0.071	34.7	-0.010
5	0.022	5	0.071	34.7	-0.056
6	0.044	5	0.071	34.7	-0.026
7	0.0888	5	0.071	34.7	-0.024
8	0.178	5	0.071	34.7	0.018
9	0.355	5	0.071	34.7	0.014

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	0.204	0.204	0.229
2	0.0028	5	0.224	0.224	0.229
3	0.0056	5	0.240	0.240	0.229
4	0.012	5	0.214	0.214	0.229
5	0.022	5	0.260	0.260	0.229
6	0.044	5	0.230	0.230	0.229
7	0.0888	5	0.228	0.228	0.228
8	0.178	5	0.186	0.186	0.188
9	0.355	5	0.190	0.190	0.188

Aminocyclopyrachlor acid & ryegrass 21-day weight; g
File: 0133lw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	0.229				
0.0028	0.229	0.922		1.69	k= 1, v=36
0.0056	0.229	0.922		1.77	k= 2, v=36
0.012	0.229	0.922		1.79	k= 3, v=36
0.022	0.229	0.922		1.80	k= 4, v=36
0.044	0.229	0.922		1.81	k= 5, v=36
0.0888	0.228	0.897		1.82	k= 6, v=36
0.178	0.188	0.598		1.82	k= 7, v=36
0.355	0.188	0.598		1.82	k= 8, v=36

s = 0.042

Note: df used for table values are approximate when v > 20.

<i>Soybean dry weight</i>	<i>Neg control</i>	<i>Solv control</i>
Mean	1.258	1.212
Variance	0.02147	0.01317
Observations	5	5
Hypothesized Mean Difference	0	
df	8	
t Stat	0.552654731	
P(T<=t) one-tail	0.297799852	
t Critical one-tail	1.859548033	
P(T<=t) two-tail	0.595599704	
t Critical two-tail	2.306004133	

Aminocyclopyrachlor acid & soybean 21-day weight; g

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133gw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	0	18	16	13	3

Calculated Chi-Square goodness of fit test statistic = 6.8335
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & soybean 21-day weight; g
 File: 0133gw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.283

W = 0.972

Critical W (P = 0.05) (n = 50) = 0.947

Critical W (P = 0.01) (n = 50) = 0.930

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & soybean 21-day weight; g
 File: 0133gw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 11.80
 Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & soybean 21-day weight; g
 File: 0133gw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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Calculated B statistic = 12.73
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & soybean 21-day weight; g
 File: 0133gw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	7.601	0.845	120.714
Within (Error)	40	0.283	0.007	
Total	49	7.884		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & soybean 21-day weight; g
 File: 0133gw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	1.258	1.258		
2	0.0000076	1.310	1.310	-0.983	
3	0.000023	1.338	1.338	-1.512	
4	0.000068	1.168	1.168	1.701	
5	0.0002	1.138	1.138	2.268	
6	0.00041	1.076	1.076	3.439	*
7	0.0012	0.886	0.886	7.030	*
8	0.0037	0.544	0.544	13.493	*
9	0.012	0.324	0.324	17.651	*
10	0.022	0.250	0.250	19.049	*

Dunnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & soybean 21-day weight; g
 File: 0133gw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0000076	5	0.133	10.6	-0.052
3	0.000023	5	0.133	10.6	-0.080
4	0.000068	5	0.133	10.6	0.090
5	0.00002	5	0.133	10.6	0.120
6	0.00041	5	0.133	10.6	0.182
7	0.0012	5	0.133	10.6	0.372
8	0.0037	5	0.133	10.6	0.714
9	0.012	5	0.133	10.6	0.934
10	0.022	5	0.133	10.6	1.008

Aminocyclopyrachlor acid & soybean 21-day weight; g
File: 0133gw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	1.258	1.258	1.302
2	0.0000076	5	1.310	1.310	1.302
3	0.000023	5	1.338	1.338	1.302
4	0.000068	5	1.168	1.168	1.168
5	0.00002	5	1.138	1.138	1.138
6	0.00041	5	1.076	1.076	1.076
7	0.0012	5	0.886	0.886	0.886
8	0.0037	5	0.544	0.544	0.544
9	0.012	5	0.324	0.324	0.324
10	0.022	5	0.250	0.250	0.250

Aminocyclopyrachlor acid & soybean 21-day weight; g
File: 0133gw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	1.302				
0.0000076	1.302	0.827		1.68	k= 1, v=40
0.000023	1.302	0.827		1.76	k= 2, v=40
0.000068	1.168	1.691		1.79	k= 3, v=40
0.00002	1.138	2.255	*	1.80	k= 4, v=40
0.00041	1.076	3.420	*	1.80	k= 5, v=40
0.0012	0.886	6.990	*	1.81	k= 6, v=40
0.0037	0.544	13.417	*	1.81	k= 7, v=40
0.012	0.324	17.551	*	1.81	k= 8, v=40
0.022	0.250	18.941	*	1.82	k= 9, v=40

s = 0.084

Note: df used for table values are approximate when v > 20.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	7.4E-05	4.0E-05	0.00013	0.13	0.55
EC10	0.00017	9.9E-05	0.00027	0.11	0.60
EC25	0.00064	0.00044	0.00092	0.078	0.70
EC50	0.0029	0.0023	0.0036	0.048	0.80

Slope = 1.04 Std.Err. = 0.0606

Goodness of fit: p = 0.22 based on DF= 7.0 40.

0133GW : Aminocyclopyrachlor acid & soybean 21-day weight; g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	1.26	1.30	-0.0378	100.	0.00
7.60e-06	5.00	1.31	1.29	0.0192	99.6	0.384
2.30e-05	5.00	1.34	1.28	0.0618	98.5	1.51
6.80e-05	5.00	1.17	1.24	-0.0676	95.4	4.64
0.000200	5.00	1.14	1.15	-0.00752	88.4	11.6
0.000410	5.00	1.08	1.05	0.0283	80.9	19.1
0.00120	5.00	0.886	0.844	0.0416	65.2	34.8
0.00370	5.00	0.544	0.588	-0.0437	45.4	54.6
0.0120	5.00	0.324	0.336	-0.0119	25.9	74.1
0.0220	5.00	0.250	0.232	0.0177	17.9	82.1

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
File: 0133sw Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	0.7280	CALCULATED t VALUE =	0.8677
GRP2 (BLANK CRTL) MEAN =	0.6580	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.0700		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
File: 0133sw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	1	13	15	16	0

Calculated Chi-Square goodness of fit test statistic = 7.4473
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
File: 0133sw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.217

W = 0.962

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
File: 0133sw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 43.93

Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4

Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
File: 0133sw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 23.45

Table Chi-square value = 20.09 (alpha = 0.01)

Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00

Used for Chi-square table value ==> df (#groups-1) = 8

Data FAIL homogeneity test at 0.01 level. Try another transformation.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133sw

Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	2.059	0.257	42.833
Within (Error)	36	0.217	0.006	
Total	44	2.276		

Critical F value = 2.27 (0.05,8,30)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
 File: 0133sw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	0.728	0.728		
2	0.000087	0.652	0.652	1.551	
3	0.00018	0.696	0.696	0.653	
4	0.00035	0.564	0.564	3.348	*
5	0.00069	0.550	0.550	3.633	*
6	0.0014	0.388	0.388	6.940	*
7	0.0028	0.278	0.278	9.186	*
8	0.0056	0.208	0.208	10.614	*
9	0.012	0.104	0.104	12.737	*

Dunnnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
 File: 0133sw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.000087	5	0.122	16.8	0.076
3	0.00018	5	0.122	16.8	0.032
4	0.00035	5	0.122	16.8	0.164
5	0.00069	5	0.122	16.8	0.178
6	0.0014	5	0.122	16.8	0.340
7	0.0028	5	0.122	16.8	0.450
8	0.0056	5	0.122	16.8	0.520
9	0.012	5	0.122	16.8	0.624

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133sw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	0.728	0.728	0.728
2	0.000087	5	0.652	0.652	0.674
3	0.00018	5	0.696	0.696	0.674
4	0.00035	5	0.564	0.564	0.564
5	0.00069	5	0.550	0.550	0.550
6	0.0014	5	0.388	0.388	0.388
7	0.0028	5	0.278	0.278	0.278
8	0.0056	5	0.208	0.208	0.208
9	0.012	5	0.104	0.104	0.104

Aminocyclopyrachlor acid & sugarbeet 21-day weight; g
File: 0133sw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	0.728				
0.000087	0.674	1.099		1.69	k= 1, v=36
0.00018	0.674	1.099		1.77	k= 2, v=36
0.00035	0.564	3.337	*	1.79	k= 3, v=36
0.00069	0.550	3.621	*	1.80	k= 4, v=36
0.0014	0.388	6.917	*	1.81	k= 5, v=36
0.0028	0.278	9.155	*	1.82	k= 6, v=36
0.0056	0.208	10.579	*	1.82	k= 7, v=36
0.012	0.104	12.695	*	1.82	k= 8, v=36

s = 0.078

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	9.9E-05	4.5E-05	0.00022	0.17	0.46
EC10	0.00019	9.7E-05	0.00037	0.14	0.51
EC25	0.00056	0.00034	0.00091	0.10	0.61
EC50	0.0019	0.0014	0.0025	0.066	0.74

Slope = 1.29 Std.Err. = 0.117

Goodness of fit: p = 0.48 based on DF= 6.0 36.

0133SW : Aminocyclopyrachlor acid & sugarbeet 21-day weight; g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
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Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A EPA MRID Number 47560133

0.00	5.00	0.728	0.720	0.00762	100.	0.00
8.70e-05	5.00	0.652	0.689	-0.0374	95.7	4.29
0.000180	5.00	0.696	0.652	0.0442	90.5	9.52
0.000350	5.00	0.564	0.595	-0.0307	82.5	17.5
0.000690	5.00	0.550	0.512	0.0380	71.1	28.9
0.00140	5.00	0.388	0.406	-0.0176	56.3	43.7
0.00280	5.00	0.278	0.295	-0.0166	40.9	59.1
0.00560	5.00	0.208	0.193	0.0150	26.8	73.2
0.0120	5.00	0.104	0.106	-0.00235	14.8	85.2

	Tomato dry weight	Neg control	Solv control
Mean		0.892	0.834
Variance		0.00897	0.01058
Observations		5	5
Hypothesized Mean Difference		0	
df		8	
t Stat		0.92755488	
P(T<=t) one-tail		0.190385781	
t Critical one-tail		1.859548033	
P(T<=t) two-tail		0.380771563	
t Critical two-tail		2.306004133	

Aminocyclopyrachlor acid & tomato 21-day weight; g
 File: 0133tw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	2	12	16	20	0

Calculated Chi-Square goodness of fit test statistic = 9.5558
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & tomato 21-day weight; g
 File: 0133tw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.340

W = 0.955

Critical W (P = 0.05) (n = 50) = 0.947

Critical W (P = 0.01) (n = 50) = 0.930

Data PASS normality test at P=0.01 level. Continue analysis.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & tomato 21-day weight; g
 File: 0133tw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

 Calculated H statistic (max Var/min Var) = 8.56
 Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

 Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & tomato 21-day weight; g
 File: 0133tw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 9.01
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & tomato 21-day weight; g
 File: 0133tw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	2.106	0.234	29.250
Within (Error)	40	0.340	0.008	
Total	49	2.446		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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Aminocyclopyrachlor acid & tomato 21-day weight; g
File: 0133tw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	0.892	0.892		
2	0.000044	0.840	0.840	0.919	
3	0.000087	0.888	0.888	0.071	
4	0.00018	0.794	0.794	1.732	
5	0.00035	0.716	0.716	3.111	*
6	0.00069	0.624	0.624	4.738	*
7	0.0014	0.556	0.556	5.940	*
8	0.0028	0.512	0.512	6.718	*
9	0.0056	0.468	0.468	7.495	*
10	0.012	0.222	0.222	11.844	*

Dunnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & tomato 21-day weight; g
File: 0133tw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.000044	5	0.142	15.9	0.052
3	0.000087	5	0.142	15.9	0.004
4	0.00018	5	0.142	15.9	0.098
5	0.00035	5	0.142	15.9	0.176
6	0.00069	5	0.142	15.9	0.268
7	0.0014	5	0.142	15.9	0.336
8	0.0028	5	0.142	15.9	0.380
9	0.0056	5	0.142	15.9	0.424
10	0.012	5	0.142	15.9	0.670

Aminocyclopyrachlor acid & tomato 21-day weight; g
File: 0133tw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	0.892	0.892	0.892
2	0.000044	5	0.840	0.840	0.864
3	0.000087	5	0.888	0.888	0.864
4	0.00018	5	0.794	0.794	0.794
5	0.00035	5	0.716	0.716	0.716
6	0.00069	5	0.624	0.624	0.624
7	0.0014	5	0.556	0.556	0.556
8	0.0028	5	0.512	0.512	0.512
9	0.0056	5	0.468	0.468	0.468

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

10 0.012 5 0.222 0.222 0.222

Aminocyclopyrachlor acid & tomato 21-day weight; g
File: 0133tw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	0.892				
0.000044	0.864	0.480		1.68	k= 1, v=40
0.000087	0.864	0.480		1.76	k= 2, v=40
0.00018	0.794	1.681		1.79	k= 3, v=40
0.00035	0.716	3.018	*	1.80	k= 4, v=40
0.00069	0.624	4.596	*	1.80	k= 5, v=40
0.0014	0.556	5.762	*	1.81	k= 6, v=40
0.0028	0.512	6.517	*	1.81	k= 7, v=40
0.0056	0.468	7.272	*	1.81	k= 8, v=40
0.012	0.222	11.490	*	1.82	k= 9, v=40

s = 0.092

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	7.0E-05	1.9E-05	0.00026	0.29	0.27
EC10	0.00017	5.6E-05	0.00051	0.24	0.33
EC25	0.00073	0.00035	0.0015	0.16	0.48
EC50	0.0037	0.0025	0.0055	0.087	0.67

Slope = 0.957 Std.Err. = 0.129

Goodness of fit: p = 0.056 based on DF= 7.0 40.

0133TW : Aminocyclopyrachlor acid & tomato 21-day weight; g

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	0.892	0.887	0.00476	100.	0.00
4.40e-05	5.00	0.840	0.858	-0.0181	96.7	3.29
8.70e-05	5.00	0.888	0.834	0.0538	94.0	5.98
0.000180	5.00	0.794	0.794	-0.000219	89.5	10.5
0.000350	5.00	0.716	0.742	-0.0257	83.6	16.4
0.000690	5.00	0.624	0.671	-0.0475	75.7	24.3
0.00140	5.00	0.556	0.582	-0.0262	65.6	34.4
0.00280	5.00	0.512	0.484	0.0281	54.5	45.5
0.00560	5.00	0.468	0.382	0.0857	43.1	56.9
0.0120	5.00	0.222	0.277	-0.0547	31.2	68.8

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

<i>Corn dry weight</i>	<i>Neg control</i>	<i>Solv control</i>
Mean	0.82	0.864
Variance	0.01785	0.01383
Observations	5	5
Hypothesized Mean Difference	0	
df	8	
t Stat	-0.5527708	
P(T<=t) one-tail	0.297761934	
t Critical one-tail	1.859548033	
P(T<=t) two-tail	0.595523868	
t Critical two-tail	2.306004133	

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
 File: 0133zw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	1	17	18	9	5

Calculated Chi-Square goodness of fit test statistic = 5.3031
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
 File: 0133zw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 0.330

W = 0.967

Critical W (P = 0.05) (n = 50) = 0.947

Critical W (P = 0.01) (n = 50) = 0.930

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
 File: 0133zw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 8.91

Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
 File: 0133zw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 9.18
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
 File: 0133zw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	0.851	0.095	11.875
Within (Error)	40	0.330	0.008	
Total	49	1.181		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
 File: 0133zw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	0.820	0.820		
2	0.0014	0.886	0.886	-1.167	

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number	N/A	EPA MRID Number 47560133			
3	0.0028	0.786	0.786	0.601	
4	0.0056	0.810	0.810	0.177	
5	0.012	0.950	0.950	-2.298	
6	0.022	0.824	0.824	-0.071	
7	0.044	0.808	0.808	0.212	
8	0.0888	0.626	0.626	3.429	*
9	0.178	0.636	0.636	3.253	*
10	0.355	0.492	0.492	5.798	*

Dunnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
File: 0133zw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0014	5	0.142	17.3	-0.066
3	0.0028	5	0.142	17.3	0.034
4	0.0056	5	0.142	17.3	0.010
5	0.012	5	0.142	17.3	-0.130
6	0.022	5	0.142	17.3	-0.004
7	0.044	5	0.142	17.3	0.012
8	0.0888	5	0.142	17.3	0.194
9	0.178	5	0.142	17.3	0.184
10	0.355	5	0.142	17.3	0.328

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
File: 0133zw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	0.820	0.820	0.853
2	0.0014	5	0.886	0.886	0.853
3	0.0028	5	0.786	0.786	0.849
4	0.0056	5	0.810	0.810	0.849
5	0.012	5	0.950	0.950	0.849
6	0.022	5	0.824	0.824	0.824
7	0.044	5	0.808	0.808	0.808
8	0.0888	5	0.626	0.626	0.631
9	0.178	5	0.636	0.636	0.631
10	0.355	5	0.492	0.492	0.492

Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A
File: 0133zw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

ISOTONIZED	CALC.	SIG	TABLE	DEGREES OF
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Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

IDENTIFICATION	MEAN	WILLIAMS	P=.05	WILLIAMS	FREEDOM
Neg control	0.853				
0.0014	0.853	0.574		1.68	k= 1, v=40
0.0028	0.849	0.499		1.76	k= 2, v=40
0.0056	0.849	0.499		1.79	k= 3, v=40
0.012	0.849	0.499		1.80	k= 4, v=40
0.022	0.824	0.070		1.80	k= 5, v=40
0.044	0.808	0.209		1.81	k= 6, v=40
0.0888	0.631	3.288	*	1.81	k= 7, v=40
0.178	0.631	3.288	*	1.81	k= 8, v=40
0.355	0.492	5.706	*	1.82	k= 9, v=40

s = 0.091

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.021	0.0065	0.067	0.25	0.31
EC10	0.042	0.017	0.10	0.19	0.41
EC25	0.13	0.085	0.21	0.098	0.64
EC50	0.48	0.31	0.76	0.098	0.64

Slope = 1.21 Std.Err. = 0.269

!!!Poor fit: p = 0.031 based on DF= 8.0 44.

0133ZW : Aminocyclopyrachlor acid & corn 21-day dry wt (g); lb/A

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs.. -Pred.	Pred. %Control	%Change
0.00	5.00	0.820	0.869	-0.0490	100.	0.00
0.000690	5.00	0.944	0.869	0.0753	100.	0.0304
0.00140	5.00	0.886	0.868	0.0180	99.9	0.111
0.00280	5.00	0.786	0.866	-0.0799	99.6	0.352
0.00560	5.00	0.810	0.860	-0.0505	99.0	0.984
0.0120	5.00	0.950	0.846	0.104	97.3	2.66
0.0220	5.00	0.824	0.823	0.00108	94.7	5.30
0.0440	5.00	0.808	0.778	0.0303	89.5	10.5
0.0888	5.00	0.626	0.706	-0.0798	81.2	18.8
0.178	5.00	0.636	0.608	0.0285	69.9	30.1
0.355	5.00	0.492	0.490	0.00207	56.4	43.6

!!!Warning: EC50 not bracketed by doses evaluated.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

	<i>Bean dry weight</i>	<i>Neg control</i>	<i>Solv control</i>
Mean		2.464	2.38
Variance		0.06208	0.17395
Observations		5	5
Hypothesized Mean Difference		0	
df		7	
t Stat		0.386616767	
P(T<=t) one-tail		0.355261875	
t Critical one-tail		1.894578604	
P(T<=t) two-tail		0.71052375	
t Critical two-tail		2.364624251	

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.283	11.858	18.718	11.858	3.283
OBSERVED	3	8	25	10	3

Calculated Chi-Square goodness of fit test statistic = 3.7034
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 2.257
 W = 0.927

Critical W (P = 0.05) (n = 49) = 0.947
 Critical W (P = 0.01) (n = 49) = 0.929

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Calculated H statistic (max Var/min Var) = 32.57
 Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 3.90
 (average df used)

 Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 19.76
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 3.90
 Used for Chi-square table value ==> df (#groups-1) = 9

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	27.269	3.030	52.241
Within (Error)	39	2.257	0.058	
Total	48	29.526		

 Critical F value = 2.21 (0.05,9,30)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control<Treatment

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	2.464	2.464		
2	0.000035	2.220	2.220	1.602	
3	0.000069	2.236	2.236	1.497	
4	0.00014	2.348	2.348	0.762	
5	0.00028	1.896	1.896	3.729	*
6	0.00056	1.850	1.850	4.031	*
7	0.0012	1.292	1.292	7.695	*
8	0.0022	0.854	0.854	10.570	*
9	0.004	0.470	0.470	13.091	*
10	0.0089	0.332	0.332	13.194	*

Bonferroni T table value = 2.67 (1 Tailed Value, P=0.05, df=39,9)

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.000035	5	0.406	16.5	0.244
3	0.000069	5	0.406	16.5	0.228
4	0.00014	5	0.406	16.5	0.116
5	0.00028	5	0.406	16.5	0.568
6	0.00056	5	0.406	16.5	0.614
7	0.0012	5	0.406	16.5	1.172
8	0.0022	5	0.406	16.5	1.610
9	0.004	5	0.406	16.5	1.994
10	0.0089	4	0.431	17.5	2.131

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A
 File: 0133bw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	2.464	2.464	2.464
2	0.000035	5	2.220	2.220	2.268
3	0.000069	5	2.236	2.236	2.268
4	0.00014	5	2.348	2.348	2.268
5	0.00028	5	1.896	1.896	1.896
6	0.00056	5	1.850	1.850	1.850
7	0.0012	5	1.292	1.292	1.292
8	0.0022	5	0.854	0.854	0.854
9	0.004	5	0.470	0.470	0.470
10	0.0089	4	0.332	0.332	0.332

Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133bw

Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	2.464				
0.000035	2.268	1.288		1.69	k= 1, v=39
0.000069	2.268	1.288		1.77	k= 2, v=39
0.00014	2.268	1.288		1.79	k= 3, v=39
0.00028	1.896	3.733	*	1.80	k= 4, v=39
0.00056	1.850	4.035	*	1.81	k= 5, v=39
0.0012	1.292	7.703	*	1.82	k= 6, v=39
0.0022	0.854	10.581	*	1.82	k= 7, v=39
0.004	0.470	13.105	*	1.82	k= 8, v=39
0.0089	0.332	13.207	*	1.82	k= 9, v=39

s = 0.241

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00011	6.0E-05	0.00020	0.13	0.55
EC10	0.00019	0.00011	0.00031	0.11	0.60
EC25	0.00048	0.00033	0.00069	0.078	0.70
EC50	0.0014	0.0011	0.0017	0.048	0.80

Slope = 1.50 Std.Err. = 0.125

Goodness of fit: p = 0.25 based on DF= 8.0 43.

0133BW : Aminocyclopyrachlor acid & bean 21-day dry wt (g); lb/A

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	2.46	2.38	0.0857	100.	0.00
1.80e-05	5.00	2.40	2.37	0.0275	99.8	0.243
3.50e-05	5.00	2.22	2.36	-0.138	99.1	0.861
6.90e-05	5.00	2.24	2.32	-0.0799	97.4	2.62
0.000140	5.00	2.35	2.21	0.135	93.0	6.97
0.000280	5.00	1.90	2.02	-0.120	84.8	15.2
0.000560	5.00	1.85	1.71	0.144	71.7	28.3
0.00120	5.00	1.29	1.26	0.0295	53.1	46.9
0.00220	5.00	0.854	0.893	-0.0387	37.5	62.5
0.00400	5.00	0.470	0.570	-0.0999	24.0	76.0
0.00890	4.00	0.332	0.261	0.0720	11.0	89.0

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CTRL) MEAN =	54.5000	CALCULATED t VALUE =	1.0912
GRP2 (BLANK CTRL) MEAN =	52.1800	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	2.3200		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	1	15	13	14	2

Calculated Chi-Square goodness of fit test statistic = 5.1490
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 413.312

W = 0.989

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 10.11
Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 9.86
Table Chi-square value = 20.09 (alpha = 0.01)
Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
Used for Chi-square table value ==> df (#groups-1) = 8

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	1350.634	168.829	14.705
Within (Error)	36	413.312	11.481	
Total	44	1763.946		

Critical F value = 2.27 (0.05,8,30)
Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	54.500	54.500		
2	0.0028	48.680	48.680	2.716	*
3	0.0056	52.620	52.620	0.877	
4	0.012	52.520	52.520	0.924	

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

5	0.022	54.560	54.560	-0.028
6	0.044	53.380	53.380	0.523
7	0.0888	50.840	50.840	1.708
8	0.178	46.520	46.520	3.724 *
9	0.355	36.220	36.220	8.530 *

Dunnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0028	5	5.357	9.8	5.820
3	0.0056	5	5.357	9.8	1.880
4	0.012	5	5.357	9.8	1.980
5	0.022	5	5.357	9.8	-0.060
6	0.044	5	5.357	9.8	1.120
7	0.0888	5	5.357	9.8	3.660
8	0.178	5	5.357	9.8	7.980
9	0.355	5	5.357	9.8	18.280

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	54.500	54.500	54.500
2	0.0028	5	48.680	48.680	52.352
3	0.0056	5	52.620	52.620	52.352
4	0.012	5	52.520	52.520	52.352
5	0.022	5	54.560	54.560	52.352
6	0.044	5	53.380	53.380	52.352
7	0.0888	5	50.840	50.840	50.840
8	0.178	5	46.520	46.520	46.520
9	0.355	5	36.220	36.220	36.220

Aminocyclopyrachlor acid & oat 21-day height; cm
File: 0133ah Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	54.500				
0.0028	52.352	1.002		1.69	k= 1, v=36
0.0056	52.352	1.002		1.77	k= 2, v=36

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

0.012	52.352	1.002		1.79	k= 3, v=36
0.022	52.352	1.002		1.80	k= 4, v=36
0.044	52.352	1.002		1.81	k= 5, v=36
0.0888	50.840	1.708		1.82	k= 6, v=36
0.178	46.520	3.724	*	1.82	k= 7, v=36
0.355	36.220	8.530	*	1.82	k= 8, v=36

s = 3.388

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.11	0.071	0.18	0.10	0.63
EC10	0.16	0.12	0.23	0.070	0.72
EC25	0.30	0.25	0.34	0.032	0.86
EC50	0.57	0.43	0.76	0.061	0.75

Slope = 2.34 Std.Err. = 0.495

Goodness of fit: p = 0.16 based on DF= 6.0 36.

0133AH : Aminocyclopyrachlor acid & oat 21-day height; cm

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	54.5	52.7	1.80	100.	0.00
0.00280	5.00	48.7	52.7	-4.02	100.	3.05e-06
0.00560	5.00	52.6	52.7	-0.0793	100.	0.000124
0.0120	5.00	52.5	52.7	-0.177	100.	0.00417
0.0220	5.00	54.6	52.7	1.88	100.	0.0454
0.0440	5.00	53.4	52.5	0.918	99.6	0.450
0.0888	5.00	50.8	51.2	-0.337	97.1	2.89
0.178	5.00	46.5	46.5	-0.00945	88.3	11.7
0.355	5.00	36.2	36.2	0.0199	68.7	31.3

!!!Warning: EC50 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORM

t-test of Solvent and Blank Controls

Ho: GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	17.7200	CALCULATED t VALUE =	0.1830
GRP2 (BLANK CRTL) MEAN =	17.5400	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.1800		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORMATION

**Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE:
Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number N/A

EPA MRID Number 47560133

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	2	13	16	13	1

Calculated Chi-Square goodness of fit test statistic = 2.5884
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 56.776

W = 0.961

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 3.74
Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Calculated B statistic = 3.05
 Table Chi-square value = 20.09 (alpha = 0.01)
 Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 8

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & onion 21-day height; cm
 File: 0133oh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	172.336	21.542	13.660
Within (Error)	36	56.776	1.577	
Total	44	229.112		

Critical F value = 2.27 (0.05,8,30)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & onion 21-day height; cm
 File: 0133oh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	17.720	17.720		
2		17.980	17.980	-0.327	
3		18.780	18.780	-1.335	
4		17.820	17.820	-0.126	
5		17.680	17.680	0.050	
6		17.920	17.920	-0.252	
7		14.960	14.960	3.475	*
8		13.580	13.580	5.213	*
9		13.380	13.380	5.464	*

Dunnnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & onion 21-day height; cm
 File: 0133oh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
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Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

1	Neg control	5			
2	0.00069	5	1.986	11.2	-0.260
3	0.0014	5	1.986	11.2	-1.060
4	0.0028	5	1.986	11.2	-0.100
5	0.0056	5	1.986	11.2	0.040
6	0.012	5	1.986	11.2	-0.200
7	0.022	5	1.986	11.2	2.760
8	0.044	5	1.986	11.2	4.140
9	0.0888	5	1.986	11.2	4.340

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	17.720	17.720	18.160
2	0.00069	5	17.980	17.980	18.160
3	0.0014	5	18.780	18.780	18.160
4	0.0028	5	17.820	17.820	17.820
5	0.0056	5	17.680	17.680	17.800
6	0.012	5	17.920	17.920	17.800
7	0.022	5	14.960	14.960	14.960
8	0.044	5	13.580	13.580	13.580
9	0.0888	5	13.380	13.380	13.380

Aminocyclopyrachlor acid & onion 21-day height; cm
File: 0133oh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	18.160				
0.00069	18.160	0.554		1.69	k= 1, v=36
0.0014	18.160	0.554		1.77	k= 2, v=36
0.0028	17.820	0.126		1.79	k= 3, v=36
0.0056	17.800	0.101		1.80	k= 4, v=36
0.012	17.800	0.101		1.81	k= 5, v=36
0.022	14.960	3.475	*	1.82	k= 6, v=36
0.044	13.580	5.212	*	1.82	k= 7, v=36
0.0888	13.380	5.464	*	1.82	k= 8, v=36

s = 1.256

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0060	0.0017	0.021	0.27	0.28
EC10	0.014	0.0059	0.035	0.19	0.41

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

EC25	0.061	0.041	0.091	0.087	0.67
EC50	0.30	0.14	0.64	0.16	0.47

Slope = 0.967 Std.Err. = 0.227

Goodness of fit: p = 0.054 based on DF= 6.0 36.

01330H : Aminocyclopyrachlor acid & onion 21-day height; cm

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. - Pred.	Pred. %Control	%Change
0.00	5.00	17.7	18.3	-0.605	100.	0.00
0.000690	5.00	18.0	18.2	-0.248	99.5	0.532
0.00140	5.00	18.8	18.1	0.675	98.8	1.20
0.00280	5.00	17.8	17.9	-0.0539	97.5	2.46
0.00560	5.00	17.7	17.5	0.215	95.3	4.69
0.0120	5.00	17.9	16.7	1.20	91.2	8.77
0.0220	5.00	15.0	15.8	-0.882	86.5	13.5
0.0440	5.00	13.6	14.5	-0.915	79.1	20.9
0.0888	5.00	13.4	12.8	0.613	69.7	30.3

!!!Warning: EC50 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & cucumber 21-day height; cm
File: 0133ch Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	10.8800	CALCULATED t VALUE =	-0.5174
GRP2 (BLANK CRTL) MEAN =	11.2200	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	-0.3400		
TABLE t VALUE (0.05 (2), 8) =	2.306	NO significant difference at alpha=0.05	
TABLE t VALUE (0.01 (2), 8) =	3.355	NO significant difference at alpha=0.01	

Aminocyclopyrachlor acid & cucumber 21-day height; cm
File: 0133ch Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	2.948	10.648	16.808	10.648	2.948
OBSERVED	1	16	13	11	3

Calculated Chi-Square goodness of fit test statistic = 4.8526
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & cucumber 21-day height; cm

**Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE:
Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133ch Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 26.550

W = 0.917

Critical W (P = 0.05) (n = 44) = 0.944

Critical W (P = 0.01) (n = 44) = 0.924

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & cucumber 21-day height; cm

File: 0133ch Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 11.29

Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
Actual values ==> R (# groups) = 9, df (# avg reps-1) = 3.89
(average df used)

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & cucumber 21-day height; cm

File: 0133ch Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 7.26

Table Chi-square value = 20.09 (alpha = 0.01)

Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 3.89

Used for Chi-square table value ==> df (#groups-1) = 8

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & cucumber 21-day height; cm
 File: 0133ch Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	96.507	12.063	15.893
Within (Error)	35	26.550	0.759	
Total	43	123.057		

Critical F value = 2.27 (0.05,8,30)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & cucumber 21-day height; cm
 File: 0133ch Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	10.880	10.880		
2	0.00035	10.820	10.820	0.109	
3	0.00069	11.420	11.420	-0.980	
4	0.0014	12.100	12.100	-2.214	
5	0.0028	11.320	11.320	-0.799	
6	0.0056	11.080	11.080	-0.363	
7	0.012	8.880	8.880	3.630	*
8	0.022	8.540	8.540	4.247	*
9	0.044	7.250	7.250	6.211	*

Bonferroni T table value = 2.63 (1 Tailed Value, P=0.05, df=35,8)

Aminocyclopyrachlor acid & cucumber 21-day height; cm
 File: 0133ch Transform: NO TRANSFORMATION

BONFERRONI T-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.00035	5	1.451	13.3	0.060
3	0.00069	5	1.451	13.3	-0.540
4	0.0014	5	1.451	13.3	-1.220
5	0.0028	5	1.451	13.3	-0.440
6	0.0056	5	1.451	13.3	-0.200
7	0.012	5	1.451	13.3	2.000
8	0.022	5	1.451	13.3	2.340
9	0.044	4	1.539	14.1	3.630

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & cucumber 21-day height; cm
File: 0133ch Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	10.880	10.880	11.308
2	0.00035	5	10.820	10.820	11.308
3	0.00069	5	11.420	11.420	11.308
4	0.0014	5	12.100	12.100	11.308
5	0.0028	5	11.320	11.320	11.308
6	0.0056	5	11.080	11.080	11.080
7	0.012	5	8.880	8.880	8.880
8	0.022	5	8.540	8.540	8.540
9	0.044	4	7.250	7.250	7.250

Aminocyclopyrachlor acid & cucumber 21-day height; cm
File: 0133ch Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	11.308				
0.00035	11.308	0.777		1.69	k= 1, v=35
0.00069	11.308	0.777		1.77	k= 2, v=35
0.0014	11.308	0.777		1.79	k= 3, v=35
0.0028	11.308	0.777		1.80	k= 4, v=35
0.0056	11.080	0.363		1.81	k= 5, v=35
0.012	8.880	3.631	*	1.82	k= 6, v=35
0.022	8.540	4.248	*	1.82	k= 7, v=35
0.044	7.250	6.213	*	1.82	k= 8, v=35

s = 0.871

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0041	0.0017	0.010	0.19	0.41
EC10	0.0077	0.0040	0.015	0.14	0.52
EC25	0.023	0.016	0.031	0.068	0.73
EC50	0.074	0.048	0.11	0.091	0.66

Slope = 1.31 Std.Err. = 0.262

!!!Poor fit: p = 0.037 based on DF= 6.0 35.

0133CH : Aminocyclopyrachlor acid & cucumber 21-day height; cm

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs.	Pred.	Obs.	Pred.	%Change
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Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

		Mean	Mean	-Pred.	%Control	
0.00	5.00	10.9	11.4	-0.509	100.	0.00
0.000350	5.00	10.8	11.4	-0.556	99.9	0.117
0.000690	5.00	11.4	11.3	0.0758	99.6	0.395
0.00140	5.00	12.1	11.3	0.849	98.8	1.21
0.00280	5.00	11.3	11.0	0.289	96.9	3.14
0.00560	5.00	11.1	10.6	0.503	92.9	7.13
0.0120	5.00	8.88	9.67	-0.791	84.9	15.1
0.0220	5.00	8.54	8.59	-0.0510	75.4	24.6
0.0440	4.00	7.25	7.01	0.238	61.6	38.4

!!!Warning: EC50 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORM

t-test of Solvent and Blank Controls

Ho: GRP1 MEAN = GRP2 MEAN

```

GRP1 (SOLVENT CTRL) MEAN = 34.4400    CALCULATED t VALUE = 1.0308
GRP2 (BLANK CTRL) MEAN   = 30.7800    DEGREES OF FREEDOM = 8
DIFFERENCE IN MEANS     = 3.6600
    
```

```

TABLE t VALUE (0.05 (2), 8) = 2.306    NO significant difference at alpha=0.05
TABLE t VALUE (0.01 (2), 8) = 3.355    NO significant difference at alpha=0.01
    
```

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	3	11	17	11	3

```

Calculated Chi-Square goodness of fit test statistic = 0.0045
Table Chi-Square value (alpha = 0.01) = 13.277
    
```

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 432.856

W = 0.895

```

Critical W (P = 0.05) (n = 45) = 0.945
Critical W (P = 0.01) (n = 45) = 0.926
    
```

Data FAIL normality test. Try another transformation.

**Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE:
Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number N/A

EPA MRID Number 47560133

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 53.35
Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)
Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4
Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 32.22
Table Chi-square value = 20.09 (alpha = 0.01)
Table Chi-square value = 15.51 (alpha = 0.05)
Average df used in calculation ==> df (avg n - 1) = 4.00
Used for Chi-square table value ==> df (#groups-1) = 8

Data FAIL homogeneity test at 0.01 level. Try another transformation.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	1733.772	216.722	18.024
Within (Error)	36	432.856	12.024	
Total	44	2166.628		

Critical F value = 2.27 (0.05, 8, 30)

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Since $F > \text{Critical } F$ REJECT H_0 : All groups equal

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	34.440	34.440		
2	0.00035	30.840	30.840	1.642	
3	0.00069	24.600	24.600	4.487	*
4	0.0014	23.580	23.580	4.952	*
5	0.0028	19.240	19.240	6.931	*
6	0.0056	18.720	18.720	7.168	*
7	0.012	16.780	16.780	8.053	*
8	0.022	16.320	16.320	8.262	*
9	0.044	16.720	16.720	8.080	*

Dunnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.00035	5	5.483	15.9	3.600
3	0.00069	5	5.483	15.9	9.840
4	0.0014	5	5.483	15.9	10.860
5	0.0028	5	5.483	15.9	15.200
6	0.0056	5	5.483	15.9	15.720
7	0.012	5	5.483	15.9	17.660
8	0.022	5	5.483	15.9	18.120
9	0.044	5	5.483	15.9	17.720

Aminocyclopyrachlor acid & oilseed rape 21-day height
File: 0133rh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	34.440	34.440	34.440
2	0.00035	5	30.840	30.840	30.840
3	0.00069	5	24.600	24.600	24.600
4	0.0014	5	23.580	23.580	23.580
5	0.0028	5	19.240	19.240	19.240
6	0.0056	5	18.720	18.720	18.720
7	0.012	5	16.780	16.780	16.780
8	0.022	5	16.320	16.320	16.520

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

9	0.044	5	16.720	16.720	16.520
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Aminocyclopyrachlor acid & oilseed rape 21-day height
 File: 0133rh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	34.440				
0.00035	30.840	1.642		1.69	k= 1, v=36
0.00069	24.600	4.487	*	1.77	k= 2, v=36
0.0014	23.580	4.952	*	1.79	k= 3, v=36
0.0028	19.240	6.931	*	1.80	k= 4, v=36
0.0056	18.720	7.168	*	1.81	k= 5, v=36
0.012	16.780	8.053	*	1.82	k= 6, v=36
0.022	16.520	8.171	*	1.82	k= 7, v=36
0.044	16.520	8.171	*	1.82	k= 8, v=36

s = 3.468

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	2.4E-06	1.1E-07	5.1E-05	0.66	0.046
EC10	1.6E-05	1.3E-06	0.00020	0.54	0.082
EC25	0.00040	8.3E-05	0.0019	0.34	0.21
EC50	0.014	0.0059	0.035	0.19	0.41

Slope = 0.435 Std.Err. = 0.0688

!!!Poor fit: p = 0.021 based on DF= 6.0 36.

0133RH : Aminocyclopyrachlor acid & oilseed rape 21-day height

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	34.4	35.1	-0.669	100.	0.00
0.000350	5.00	30.8	26.6	4.22	75.8	24.2
0.000690	5.00	24.6	25.2	-0.555	71.6	28.4
0.00140	5.00	23.6	23.5	0.0716	67.0	33.0
0.00280	5.00	19.2	21.8	-2.56	62.1	37.9
0.00560	5.00	18.7	20.0	-1.30	57.0	43.0
0.0120	5.00	16.8	18.0	-1.24	51.3	48.7
0.0220	5.00	16.3	16.4	-0.0938	46.8	53.2
0.0440	5.00	16.7	14.6	2.12	41.6	58.4

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

<i>Soybean height</i>	<i>Neg control</i>	<i>Solv control</i>
Mean	18.78	18.06
Variance	3.407	1.643
Observations	5	5
Hypothesized Mean Difference	.0	
df	7	
t Stat	0.716426777	
P(T<=t) one-tail	0.248463804	
t Critical one-tail	1.894578604	
P(T<=t) two-tail	0.496927608	
t Critical two-tail	2.364624251	

Aminocyclopyrachlor acid & soybean 21-day height; cm
 File: 0133gh Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	0	17	18	12	3

Calculated Chi-Square goodness of fit test statistic = 5.4350
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & soybean 21-day height; cm
 File: 0133gh Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 82.280
 W = 0.980

Critical W (P = 0.05) (n = 50) = 0.947
 Critical W (P = 0.01) (n = 50) = 0.930

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & soybean 21-day height; cm
 File: 0133gh Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 49.31
 Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

 Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & soybean 21-day height; cm
 File: 0133gh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 13.64
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & soybean 21-day height; cm
 File: 0133gh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	393.720	43.747	21.267
Within (Error)	40	82.280	2.057	
Total	49	476.000		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & soybean 21-day height; cm
 File: 0133gh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	18.780	18.780		

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

2	0.0000076	18.860	18.860	-0.088
3	0.000023	18.420	18.420	0.397
4	0.000068	18.080	18.080	0.772
5	0.0002	19.780	19.780	-1.102
6	0.00041	16.820	16.820	2.161
7	0.0012	16.060	16.060	2.999 *
8	0.0037	12.920	12.920	6.460 *
9	0.012	12.180	12.180	7.276 *
10	0.022	12.100	12.100	7.364 *

Dunnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & soybean 21-day height; cm
File: 0133gh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0000076	5	2.277	12.1	-0.080
3	0.000023	5	2.277	12.1	0.360
4	0.000068	5	2.277	12.1	0.700
5	0.0002	5	2.277	12.1	-1.000
6	0.00041	5	2.277	12.1	1.960
7	0.0012	5	2.277	12.1	2.720
8	0.0037	5	2.277	12.1	5.860
9	0.012	5	2.277	12.1	6.600
10	0.022	5	2.277	12.1	6.680

Aminocyclopyrachlor acid & soybean 21-day height; cm
File: 0133gh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	18.780	18.780	18.820
2	0.0000076	5	18.860	18.860	18.820
3	0.000023	5	18.420	18.420	18.760
4	0.000068	5	18.080	18.080	18.760
5	0.0002	5	19.780	19.780	18.760
6	0.00041	5	16.820	16.820	16.820
7	0.0012	5	16.060	16.060	16.060
8	0.0037	5	12.920	12.920	12.920
9	0.012	5	12.180	12.180	12.180
10	0.022	5	12.100	12.100	12.100

Aminocyclopyrachlor acid & soybean 21-day height; cm
File: 0133gh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	18.820				
0.0000076	18.820	0.044		1.68	k= 1, v=40
0.000023	18.760	0.022		1.76	k= 2, v=40
0.000068	18.760	0.022		1.79	k= 3, v=40
0.0002	18.760	0.022		1.80	k= 4, v=40
0.00041	16.820	2.161	*	1.80	k= 5, v=40
0.0012	16.060	2.999	*	1.81	k= 6, v=40
0.0037	12.920	6.460	*	1.81	k= 7, v=40
0.012	12.180	7.276	*	1.81	k= 8, v=40
0.022	12.100	7.364	*	1.82	k= 9, v=40

s = 1.434

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	8.0E-05	1.0E-05	0.00063	0.45	0.13
EC10	0.00034	7.0E-05	0.0016	0.34	0.21
EC25	0.0038	0.0017	0.0084	0.17	0.45
EC50	0.055	0.028	0.11	0.14	0.52

Slope = 0.580 Std.Err. = 0.104

!!!Poor fit: p = 0.019 based on DF= 7.0 40.

0133GH : Aminocyclopyrachlor acid & soybean 21-day height; cm

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	18.8	19.2	-0.398	100.	0.00
7.60e-06	5.00	18.9	18.9	-0.0753	98.7	1.27
2.30e-05	5.00	18.4	18.7	-0.276	97.5	2.51
6.80e-05	5.00	18.1	18.3	-0.215	95.4	4.60
0.000200	5.00	19.8	17.7	2.11	92.1	7.88
0.000410	5.00	16.8	17.1	-0.269	89.1	10.9
0.00120	5.00	16.1	16.0	0.104	83.2	16.8
0.00370	5.00	12.9	14.4	-1.49	75.1	24.9
0.0120	5.00	12.2	12.4	-0.265	64.9	35.1
0.0220	5.00	12.1	11.3	0.768	59.1	40.9

!!!Warning: EC50 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm

File: 0133sh Transform: NO TRANSFORM

t-test of Solvent and Blank Controls

Ho: GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	16.1400	CALCULATED t VALUE =	0.5027
GRP2 (BLANK CRTL) MEAN =	15.8600	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.2800		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	2	12	16	15	0

Calculated Chi-Square goodness of fit test statistic = 5.1034
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 37.272

W = 0.975

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 24.95

Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 9, df (# reps-1) = 4

Actual values ==> R (# groups) = 9, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B statistic = 15.43
Table Chi-square value = 20.09 (alpha = 0.01)
Table Chi-square value = 15.51 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
Used for Chi-square table value ==> df (#groups-1) = 8

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	100.654	12.582	12.157
Within (Error)	36	37.272	1.035	
Total	44	137.926		

Critical F value = 2.27 (0.05,8,30)
Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	16.140	16.140		
2	0.000087	15.380	15.380	1.181	
3	0.00018	16.020	16.020	0.187	
4	0.00035	15.060	15.060	1.679	
5	0.00069	15.160	15.160	1.523	
6	0.0014	13.780	13.780	3.668	*
7	0.0028	14.120	14.120	3.139	*
8	0.0056	13.440	13.440	4.196	*
9	0.012	11.060	11.060	7.895	*

Dunnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133sh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.000087	5	1.609	10.0	0.760
3	0.00018	5	1.609	10.0	0.120
4	0.00035	5	1.609	10.0	1.080
5	0.00069	5	1.609	10.0	0.980
6	0.0014	5	1.609	10.0	2.360
7	0.0028	5	1.609	10.0	2.020
8	0.0056	5	1.609	10.0	2.700
9	0.012	5	1.609	10.0	5.080

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	16.140	16.140	16.140
2	0.000087	5	15.380	15.380	15.700
3	0.00018	5	16.020	16.020	15.700
4	0.00035	5	15.060	15.060	15.110
5	0.00069	5	15.160	15.160	15.110
6	0.0014	5	13.780	13.780	13.950
7	0.0028	5	14.120	14.120	13.950
8	0.0056	5	13.440	13.440	13.440
9	0.012	5	11.060	11.060	11.060

Aminocyclopyrachlor acid & sugarbeet 21-day height; cm
File: 0133sh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	16.140				
0.000087	15.700	0.684		1.69	k= 1, v=36
0.00018	15.700	0.684		1.77	k= 2, v=36
0.00035	15.110	1.601		1.79	k= 3, v=36
0.00069	15.110	1.601		1.80	k= 4, v=36
0.0014	13.950	3.403	*	1.81	k= 5, v=36
0.0028	13.950	3.403	*	1.82	k= 6, v=36
0.0056	13.440	4.196	*	1.82	k= 7, v=36
0.012	11.060	7.894	*	1.82	k= 8, v=36

s = 1.018

Note: df used for table values are approximate when v > 20.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

0133SH : Aminocyclopyrachlor acid & sugarbeet 21-day height; cm

Williams Test

[One-Sided Test for Decrease, alpha = 0.050000]

Dose	Isotone Means	T-bar	P-value	Significance
0	16.1	.		
8.7E-05	15.7	0.6837	N.S.	
0.00018	15.7	0.6837	N.S.	
0.00035	15.1	1.601	N.S.	
0.00069	15.1	1.601	N.S.	
0.0014	13.9	3.403	<0.005	*
0.0028	13.9	3.403	<0.005	*
0.0056	13.4	4.196	<0.005	*
0.012	11.1	7.894	<0.005	*

"*"=Significant; "N.S."=Not Significant.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00070	0.00018	0.0028	0.29	0.25
EC10	0.0019	0.00072	0.0048	0.20	0.39
EC25	0.0095	0.0061	0.015	0.093	0.65
EC50	0.058	0.024	0.14	0.19	0.41

Slope = 0.858 Std.Err. = 0.201

Goodness of fit: p = 0.28 based on DF= 6.0 36.

0133SH : Aminocyclopyrachlor acid & sugarbeet 21-day height; cm

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	16.1	15.8	0.295	100.	0.00
8.70e-05	5.00	15.4	15.7	-0.342	99.2	0.774
0.000180	5.00	16.0	15.6	0.425	98.4	1.58
0.000350	5.00	15.1	15.4	-0.332	97.1	2.86
0.000690	5.00	15.2	15.1	0.0997	95.0	4.95
0.00140	5.00	13.8	14.5	-0.752	91.7	8.29
0.00280	5.00	14.1	13.8	0.330	87.0	13.0
0.00560	5.00	13.4	12.8	0.641	80.8	19.2
0.0120	5.00	11.1	11.4	-0.364	72.1	27.9

!!!Warning: EC50 not bracketed by doses evaluated.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

<i>Tomato height</i>	<i>Neg control</i>	<i>Solv control</i>
Mean	16.38	17.06
Variance	2.662	0.468
Observations	5	5
Hypothesized Mean Difference	0	
df	5	
t Stat	-0.859452237	
P(T<=t) one-tail	0.214681023	
t Critical one-tail	2.015048372	
P(T<=t) two-tail	0.429362046	
t Critical two-tail	2.570581835	

Aminocyclopyrachlor acid & tomato 21-day height; cm
File: 0133th Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	4	12	20	12	2

Calculated Chi-Square goodness of fit test statistic = 0.7142
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & tomato 21-day height; cm
File: 0133th Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 76.836

W = 0.976

Critical W (P = 0.05) (n = 50) = 0.947
Critical W (P = 0.01) (n = 50) = 0.930

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & tomato 21-day height; cm
File: 0133th Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Calculated H statistic (max Var/min Var) = 19.30
 Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

 Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & tomato 21-day height; cm
 File: 0133th Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 11.65
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & tomato 21-day height; cm
 File: 0133th Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	696.344	77.372	40.277
Within (Error)	40	76.836	1.921	
Total	49	773.180		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & tomato 21-day height; cm
 File: 0133th Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
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Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

1	Neg control	16.380	16.380	
2	0.000044	18.380	18.380	-2.282
3	0.000087	18.980	18.980	-2.966
4	0.00018	18.320	18.320	-2.213
5	0.00035	18.340	18.340	-2.236
6	0.00069	18.500	18.500	-2.418
7	0.0014	16.860	16.860	-0.548
8	0.0028	13.020	13.020	3.833 *
9	0.0056	10.860	10.860	6.297 *
10	0.012	7.500	7.500	10.130 *

Dunnnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & tomato 21-day height; cm
File: 0133th Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.000044	5	2.200	13.4	-2.000
3	0.000087	5	2.200	13.4	-2.600
4	0.00018	5	2.200	13.4	-1.940
5	0.00035	5	2.200	13.4	-1.960
6	0.00069	5	2.200	13.4	-2.120
7	0.0014	5	2.200	13.4	-0.480
8	0.0028	5	2.200	13.4	3.360
9	0.0056	5	2.200	13.4	5.520
10	0.012	5	2.200	13.4	8.880

Aminocyclopyrachlor acid & tomato 21-day height; cm
File: 0133th Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	16.380	16.380	18.150
2	0.000044	5	18.380	18.380	18.150
3	0.000087	5	18.980	18.980	18.150
4	0.00018	5	18.320	18.320	18.150
5	0.00035	5	18.340	18.340	18.150
6	0.00069	5	18.500	18.500	18.150
7	0.0014	5	16.860	16.860	16.860
8	0.0028	5	13.020	13.020	13.020
9	0.0056	5	10.860	10.860	10.860
10	0.012	5	7.500	7.500	7.500

Aminocyclopyrachlor acid & tomato 21-day height; cm
File: 0133th Transform: NO TRANSFORMATION

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

WILLIAMS TEST (Isotonic regression model)		TABLE 2 OF 2			
IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	18.150				
0.000044	18.150	2.019	*	1.68	k= 1, v=40
0.000087	18.150	2.019	*	1.76	k= 2, v=40
0.00018	18.150	2.019	*	1.79	k= 3, v=40
0.00035	18.150	2.019	*	1.80	k= 4, v=40
0.00069	18.150	2.019	*	1.80	k= 5, v=40
0.0014	16.860	0.548		1.81	k= 6, v=40
0.0028	13.020	3.833	*	1.81	k= 7, v=40
0.0056	10.860	6.297	*	1.81	k= 8, v=40
0.012	7.500	10.130	*	1.82	k= 9, v=40

s = 1.386

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00073	0.00042	0.0013	0.12	0.58
EC10	0.0012	0.00080	0.0019	0.095	0.64
EC25	0.0030	0.0023	0.0040	0.058	0.76
EC50	0.0082	0.0070	0.0096	0.034	0.85

Slope = 1.57 Std.Err. = 0.171

!!!Poor fit: p = 0.044 based on DF= 7.0 40.

0133TH : Aminocyclopyrachlor acid & tomato 21-day height; cm

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	16.4	18.3	-1.93	100.	0.00
4.40e-05	5.00	18.4	18.3	0.0721	100.	0.0185
8.70e-05	5.00	19.0	18.3	0.687	99.9	0.0981
0.000180	5.00	18.3	18.2	0.0941	99.5	0.466
0.000350	5.00	18.3	18.0	0.320	98.4	1.59
0.000690	5.00	18.5	17.5	1.03	95.4	4.61
0.00140	5.00	16.9	16.2	0.651	88.5	11.5
0.00280	5.00	13.0	14.0	-1.02	76.7	23.3
0.00560	5.00	10.9	11.0	-0.147	60.1	39.9
0.0120	5.00	7.50	7.25	0.246	39.6	60.4

Aminocyclopyrachlor acid & ryegrass 21-day height; cm

File: 0133lh Transform: NO TRANSFORM

t-test of Solvent and Blank Controls

Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	23.5200	CALCULATED t VALUE =	0.8524
GRP2 (BLANK CRTL) MEAN =	22.7200	DEGREES OF FREEDOM =	8
DIFFERENCE IN MEANS =	0.8000		

TABLE t VALUE (0.05 (2), 8) = 2.306 NO significant difference at alpha=0.05

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

TABLE t VALUE (0.01 (2), 8) = 3.355 NO significant difference at alpha=0.01

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
 File: 01331h Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	2	13	15	14	1

Calculated Chi-Square goodness of fit test statistic = 3.2644
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
 File: 01331h Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 139.252
 W = 0.955

Critical W (P = 0.05) (n = 45) = 0.945
 Critical W (P = 0.01) (n = 45) = 0.926

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
 File: 01331h Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 7.02
 Closest, conservative, Table H statistic = 97.0 (alpha = 0.01)

Used for Table H ==>	R (# groups) = 9,	df (# reps-1) = 4
Actual values ==>	R (# groups) = 9,	df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
 File: 0133lh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 3.90
 Table Chi-square value = 20.09 (alpha = 0.01)
 Table Chi-square value = 15.51 (alpha = 0.05)
 Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 8

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
 File: 0133lh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	8	12.256	1.532	0.396
Within (Error)	36	139.252	3.868	
Total	44	151.508		

Critical F value = 2.27 (0.05,8,30)
 Since F < Critical F FAIL TO REJECT Ho:All groups equal

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
 File: 0133lh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	23.520	23.520		
2	0.0028	22.500	22.500	0.820	
3	0.0056	23.120	23.120	0.322	
4	0.012	23.680	23.680	-0.129	
5	0.022	23.980	23.980	-0.370	
6	0.044	23.460	23.460	0.048	
7	0.0888	22.920	22.920	0.482	
8	0.178	22.420	22.420	0.884	
9	0.355	22.660	22.660	0.691	

Dunnett table value = 2.50 (1 Tailed Value, P=0.05, df=30,8)

Aminocyclopyrachlor acid & ryegrass 21-day height; cm

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 01331h Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0028	5	3.110	13.2	1.020
3	0.0056	5	3.110	13.2	0.400
4	0.012	5	3.110	13.2	-0.160
5	0.022	5	3.110	13.2	-0.460
6	0.044	5	3.110	13.2	0.060
7	0.0888	5	3.110	13.2	0.600
8	0.178	5	3.110	13.2	1.100
9	0.355	5	3.110	13.2	0.860

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
File: 01331h Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	23.520	23.520	23.520
2	0.0028	5	22.500	22.500	23.348
3	0.0056	5	23.120	23.120	23.348
4	0.012	5	23.680	23.680	23.348
5	0.022	5	23.980	23.980	23.348
6	0.044	5	23.460	23.460	23.348
7	0.0888	5	22.920	22.920	22.920
8	0.178	5	22.420	22.420	22.540
9	0.355	5	22.660	22.660	22.540

Aminocyclopyrachlor acid & ryegrass 21-day height; cm
File: 01331h Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	23.520				
0.0028	23.348	0.138		1.69	k= 1, v=36
0.0056	23.348	0.138		1.77	k= 2, v=36
0.012	23.348	0.138		1.79	k= 3, v=36
0.022	23.348	0.138		1.80	k= 4, v=36
0.044	23.348	0.138		1.81	k= 5, v=36
0.0888	22.920	0.482		1.82	k= 6, v=36
0.178	22.540	0.788		1.82	k= 7, v=36
0.355	22.540	0.788		1.82	k= 8, v=36

s = 1.967

Note: df used for table values are approximate when v > 20.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

<i>Corn height</i>	<i>Neg control</i>	<i>Solv control</i>
Mean	54.74	55.62
Variance	11.918	5.777
Observations	5	5
Hypothesized Mean Difference	0	
df	7	
t Stat	-0.467780798	
P(T<=t) one-tail	0.327077684	
t Critical one-tail	1.894578604	
P(T<=t) two-tail	0.654155367	
t Critical two-tail	2.364624251	

Aminocyclopyrachlor acid & corn height (cm); lb/A
 File: 0133zh Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	4	11	18	17	0

Calculated Chi-Square goodness of fit test statistic = 5.6238
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & corn height (cm); lb/A
 File: 0133zh Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 190.516

W = 0.930

Critical W (P = 0.05) (n = 50) = 0.947
 Critical W (P = 0.01) (n = 50) = 0.930

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & corn height (cm); lb/A
 File: 0133zh Transform: NO TRANSFORMATION

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Hartley test for homogeneity of variance

 Calculated H statistic (max Var/min Var) = 26.08
 Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)
 Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & corn height (cm); lb/A
 File: 0133zh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 12.58
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)
 Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & corn height (cm); lb/A
 File: 0133zh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	3511.059	390.118	81.906
Within (Error)	40	190.516	4.763	
Total	49	3701.575		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & corn height (cm); lb/A
 File: 0133zh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	54.740	54.740		
2	0.0014	56.280	56.280	-1.116	
3	0.0028	54.420	54.420	0.232	
4	0.0056	55.940	55.940	-0.869	
5	0.012	57.340	57.340	-1.884	
6	0.022	51.980	51.980	2.000	
7	0.044	46.680	46.680	5.839	*
8	0.0888	38.160	38.160	12.012	*
9	0.178	37.180	37.180	12.722	*
10	0.355	34.920	34.920	14.359	*

Dunnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & corn height (cm); lb/A
File: 0133zh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.0014	5	3.465	6.3	-1.540
3	0.0028	5	3.465	6.3	0.320
4	0.0056	5	3.465	6.3	-1.200
5	0.012	5	3.465	6.3	-2.600
6	0.022	5	3.465	6.3	2.760
7	0.044	5	3.465	6.3	8.060
8	0.0888	5	3.465	6.3	16.580
9	0.178	5	3.465	6.3	17.560
10	0.355	5	3.465	6.3	19.820

Aminocyclopyrachlor acid & corn height (cm); lb/A
File: 0133zh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	54.740	54.740	55.744
2	0.0014	5	56.280	56.280	55.744
3	0.0028	5	54.420	54.420	55.744
4	0.0056	5	55.940	55.940	55.744
5	0.012	5	57.340	57.340	55.744
6	0.022	5	51.980	51.980	51.980
7	0.044	5	46.680	46.680	46.680
8	0.0888	5	38.160	38.160	38.160
9	0.178	5	37.180	37.180	37.180
10	0.355	5	34.920	34.920	34.920

Aminocyclopyrachlor acid & corn height (cm); lb/A

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

File: 0133zh

Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	55.744				
0.0014	55.744	0.727		1.68	k= 1, v=40
0.0028	55.744	0.727		1.76	k= 2, v=40
0.0056	55.744	0.727		1.79	k= 3, v=40
0.012	55.744	0.727		1.80	k= 4, v=40
0.022	51.980	2.000	*	1.80	k= 5, v=40
0.044	46.680	5.839	*	1.81	k= 6, v=40
0.0888	38.160	12.012	*	1.81	k= 7, v=40
0.178	37.180	12.722	*	1.81	k= 8, v=40
0.355	34.920	14.359	*	1.82	k= 9, v=40

s = 2.182

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0071	0.0030	0.017	0.19	0.42
EC10	0.019	0.0097	0.037	0.14	0.51
EC25	0.096	0.068	0.13	0.074	0.71
EC50	0.58	0.43	0.79	0.066	0.74

Slope = 0.860 Std.Err. = 0.0998

!!!Poor fit: p < 0.001 based on DF= 8.00 44.0

0133ZH : Aminocyclopyrachlor acid & corn height (cm); lb/A

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	54.7	56.8	-2.06	100.	0.00
0.000690	5.00	55.8	56.5	-0.619	99.4	0.592
0.00140	5.00	56.3	56.1	0.174	98.8	1.21
0.00280	5.00	54.4	55.5	-1.06	97.7	2.31
0.00560	5.00	55.9	54.4	1.50	95.9	4.14
0.0120	5.00	57.3	52.6	4.72	92.6	7.35
0.0220	5.00	52.0	50.5	1.46	88.9	11.1
0.0440	5.00	46.7	47.3	-0.611	83.3	16.7
0.0888	5.00	38.2	43.1	-4.94	75.9	24.1
0.178	5.00	37.2	38.1	-0.929	67.1	32.9
0.355	5.00	34.9	32.6	2.36	57.3	42.7

!!!Warning: EC50 not bracketed by doses evaluated.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

<i>Bean height</i>	<i>Neg control</i>	<i>Solv control</i>
Mean	21.08	20.26
Variance	1.697	6.463
Observations	5	5
Hypothesized Mean Difference	0	
df	6	
t Stat	0.641879898	
P(T<=t) one-tail	0.272339208	
t Critical one-tail	1.943180274	
P(T<=t) two-tail	0.544678417	
t Critical two-tail	2.446911846	

Aminocyclopyrachlor acid & bean height (cm); lb/A
 File: 0133bh Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	3	13	20	11	3

Calculated Chi-Square goodness of fit test statistic = 0.2825
 Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

Aminocyclopyrachlor acid & bean height (cm); lb/A
 File: 0133bh Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 82.332

W = 0.986

Critical W (P = 0.05) (n = 50) = 0.947

Critical W (P = 0.01) (n = 50) = 0.930

Data PASS normality test at P=0.01 level. Continue analysis.

Aminocyclopyrachlor acid & bean height (cm); lb/A
 File: 0133bh Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance

Calculated H statistic (max Var/min Var) = 32.41

Closest, conservative, Table H statistic = 106.0 (alpha = 0.01)

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Used for Table H ==> R (# groups) = 10, df (# reps-1) = 4
 Actual values ==> R (# groups) = 10, df (# avg reps-1) = 4.00

 Data PASS homogeneity test. Continue analysis.

NOTE: This test requires equal replicate sizes. If they are unequal but do not differ greatly, the Hartley test may still be used as an approximate test (average df are used).

Aminocyclopyrachlor acid & bean height (cm); lb/A
 File: 0133bh Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

 Calculated B statistic = 13.84
 Table Chi-square value = 21.67 (alpha = 0.01)
 Table Chi-square value = 16.92 (alpha = 0.05)

Average df used in calculation ==> df (avg n - 1) = 4.00
 Used for Chi-square table value ==> df (#groups-1) = 9

 Data PASS homogeneity test at 0.01 level. Continue analysis.

NOTE: If groups have unequal replicate sizes the average replicate size is used to calculate the B statistic (see above).

Aminocyclopyrachlor acid & bean height (cm); lb/A
 File: 0133bh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	9	745.693	82.855	40.260
Within (Error)	40	82.332	2.058	
Total	49	828.025		

Critical F value = 2.12 (0.05,9,40)
 Since F > Critical F REJECT Ho:All groups equal

Aminocyclopyrachlor acid & bean height (cm); lb/A
 File: 0133bh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	Neg control	21.080	21.080		

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A EPA MRID Number 47560133

2	0.000018	19.460	19.460	1.786	
3	0.000035	17.220	17.220	4.254	*
4	0.000069	17.000	17.000	4.497	*
5	0.00014	15.580	15.580	6.062	*
6	0.00028	14.080	14.080	7.715	*
7	0.00056	11.960	11.960	10.052	*
8	0.0012	10.100	10.100	12.102	*
9	0.0022	10.280	10.280	11.903	*
10	0.004	9.720	9.720	12.521	*

Dunnett table value = 2.51 (1 Tailed Value, P=0.05, df=40,9)

Aminocyclopyrachlor acid & bean height (cm); lb/A
File: 0133bh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Neg control	5			
2	0.000018	5	2.277	10.8	1.620
3	0.000035	5	2.277	10.8	3.860
4	0.000069	5	2.277	10.8	4.080
5	0.00014	5	2.277	10.8	5.500
6	0.00028	5	2.277	10.8	7.000
7	0.00056	5	2.277	10.8	9.120
8	0.0012	5	2.277	10.8	10.980
9	0.0022	5	2.277	10.8	10.800
10	0.004	5	2.277	10.8	11.360

Aminocyclopyrachlor acid & bean height (cm); lb/A
File: 0133bh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Neg control	5	21.080	21.080	21.080
2	0.000018	5	19.460	19.460	19.460
3	0.000035	5	17.220	17.220	17.220
4	0.000069	5	17.000	17.000	17.000
5	0.00014	5	15.580	15.580	15.580
6	0.00028	5	14.080	14.080	14.080
7	0.00056	5	11.960	11.960	11.960
8	0.0012	5	10.100	10.100	10.190
9	0.0022	5	10.280	10.280	10.190
10	0.004	5	9.720	9.720	9.720

Aminocyclopyrachlor acid & bean height (cm); lb/A
File: 0133bh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Neg control	21.080				
0.000018	19.460	1.785	*	1.68	k= 1, v=40
0.000035	17.220	4.254	*	1.76	k= 2, v=40
0.000069	17.000	4.497	*	1.79	k= 3, v=40
0.00014	15.580	6.061	*	1.80	k= 4, v=40
0.00028	14.080	7.715	*	1.80	k= 5, v=40
0.00056	11.960	10.051	*	1.81	k= 6, v=40
0.0012	10.190	12.002	*	1.81	k= 7, v=40
0.0022	10.190	12.002	*	1.81	k= 8, v=40
0.004	9.720	12.520	*	1.82	k= 9, v=40

s = 1.435

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	7.8E-07	1.4E-07	4.3E-06	0.37	0.18
EC10	4.3E-06	1.0E-06	1.8E-05	0.30	0.24
EC25	7.5E-05	2.9E-05	0.00019	0.20	0.39
EC50	0.0018	0.0011	0.0030	0.12	0.59

Slope = 0.489 Std.Err. = 0.0444

!!!Poor fit: p = 0.018 based on DF= 8.0 43.

0133BH : Aminocyclopyrachlor acid & bean height (cm); lb/A

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	21.1	21.7	-0.603	100.	0.00
1.80e-05	5.00	19.5	18.1	1.34	83.6	16.4
3.50e-05	5.00	17.2	17.3	-0.0903	79.8	20.2
6.90e-05	5.00	17.0	16.4	0.621	75.5	24.5
0.000140	5.00	15.6	15.3	0.276	70.6	29.4
0.000280	5.00	14.1	14.2	-0.0832	65.3	34.7
0.000560	5.00	12.0	13.0	-0.994	59.7	40.3
0.00120	5.00	10.1	11.6	-1.47	53.4	46.6
0.00220	5.00	10.3	10.5	-0.182	48.2	51.8
0.00400	5.00	9.72	9.37	0.350	43.2	56.8
0.00890	4.00	9.00	7.95	1.05	36.7	63.3

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Aminocyclopyrachlor acid & bean 21-day % survival; lb/A
File: 0133bs Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL <-1.5 -1.5 to <-0.5 -0.5 to 0.5 >0.5 to 1.5 >1.5

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	0	1	48	1	0

 Calculated Chi-Square goodness of fit test statistic = 70.7936
 Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & bean 21-day % survival; lb/A
 File: 0133bs Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

 D = 1250.000

W = 0.281

Critical W (P = 0.05) (n = 50) = 0.947
 Critical W (P = 0.01) (n = 50) = 0.930

 Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & bean 21-day % survival; lb/A
 File: 0133bs Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
 Bartlett's test for homogeneity of variance

 These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
 Additional transformations are useless.

 Aminocyclopyrachlor acid & bean 21-day % survival; lb/A
 File: 0133bs Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.000035	100.000	27.50	15.00	5.00	

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A EPA MRID Number 47560133

3	0.000069	100.000	27.50	15.00	5.00
4	0.00014	100.000	27.50	15.00	5.00
5	0.00028	100.000	27.50	15.00	5.00
6	0.00056	100.000	27.50	15.00	5.00
7	0.0012	100.000	27.50	15.00	5.00
8	0.0022	100.000	27.50	15.00	5.00
9	0.004	100.000	27.50	15.00	5.00
10	0.0089	25.000	15.00	15.00	5.00 *

 Critical values use k = 9, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & bean 21-day % survival; lb/A
 File: 0133bs Transform: NO TRANSFORMATION

 KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	140.000
2	0.000035	100.000	100.000	140.000
3	0.000069	100.000	100.000	140.000
4	0.00014	100.000	100.000	140.000
5	0.00028	100.000	100.000	140.000
6	0.00056	100.000	100.000	140.000
7	0.0012	100.000	100.000	140.000
8	0.0022	100.000	100.000	140.000
9	0.004	100.000	100.000	140.000
10	0.0089	25.000	25.000	15.000

 Calculated H Value = 2.557 Critical H Value Table = 16.920
 Since Calc H < Crit H FAIL TO REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & bean 21-day % survival; lb/A
 File: 0133bs Transform: NO TRANSFORMATION

 DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP													
				1	0	0	0	0	0	0	0	0	0				
10	0.0089	25.000	25.000	\													
2	0.000035	100.000	100.000	.	\												
3	0.000069	100.000	100.000	.	.	\											
4	0.00014	100.000	100.000	.	.	.	\										
5	0.00028	100.000	100.000	.	.	.	.	\					
6	0.00056	100.000	100.000	.	.	.	.	.	\			
7	0.0012	100.000	100.000	.	.	.	.	.	.	\	
8	0.0022	100.000	100.000	.	.	.	.	.	.	.	\
9	0.004	100.000	100.000	.	.	.	.	.	.	.	.	\
1	Neg control	100.000	100.000	.	.	.	.	.	.	.	.	.	\

 * = significant difference (p=0.05) . = no significant difference
 Table q value (0.05,10) = 3.261 SE = 8.222

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

0133BS : Aminocyclopyrachlor acid & bean 21-day % survival; lb/A

Williams Test

[One-Sided Test for Decrease, alpha = 0.050000]

Dose	Isotone Means	T-bar	P-value	Significance
0	100	.		
1.8E-05	100	0	N.S.	
3.5E-05	100	0	N.S.	
6.9E-05	100	0	N.S.	
0.00014	100	0	N.S.	
0.00028	100	0	N.S.	
0.00056	100	0	N.S.	
0.0012	100	0	N.S.	
0.0022	100	0	N.S.	
0.004	100	0	N.S.	
0.0089	25	22.25	<0.005	*

"*"=Significant; "N.S."=Not Significant.

!!!Failure #3: Data not suitable for probit model fit.

Criterion is 3 or more distinct isotone means.

Aminocyclopyrachlor acid & corn 21-day % survival; lb/A
File: 0133zs Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	2	0	48	0	0

Calculated Chi-Square goodness of fit test statistic = 71.8223
Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & corn 21-day % survival; lb/A
File: 0133zs Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 1000.000

W = 0.450

Critical W (P = 0.05) (n = 50) = 0.947
Critical W (P = 0.01) (n = 50) = 0.930

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & corn 21-day % survival; lb/A
 File: 0133zs Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
 Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
 Additional transformations are useless.

Aminocyclopyrachlor acid & corn 21-day % survival; lb/A
 File: 0133zs Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.0014	100.000	27.50	15.00	5.00	
3	0.0028	100.000	27.50	15.00	5.00	
4	0.0056	100.000	27.50	15.00	5.00	
5	0.012	100.000	27.50	15.00	5.00	
6	0.022	100.000	27.50	15.00	5.00	
7	0.044	100.000	27.50	15.00	5.00	
8	0.0888	100.000	27.50	15.00	5.00	
9	0.178	95.000	25.00	15.00	5.00	
10	0.355	95.000	25.00	15.00	5.00	

Critical values use k = 9, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & corn 21-day % survival; lb/A
 File: 0133zs Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	132.500
2	0.0014	100.000	100.000	132.500
3	0.0028	100.000	100.000	132.500
4	0.0056	100.000	100.000	132.500
5	0.012	100.000	100.000	132.500
6	0.022	100.000	100.000	132.500
7	0.044	100.000	100.000	132.500
8	0.0888	100.000	100.000	132.500

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A EPA MRID Number 47560133

9	0.178	95.000	95.000	107.500
10	0.355	95.000	95.000	107.500

Calculated H Value = -0.400 Critical H Value Table = 16.920
 Since Calc H < Crit H FAIL TO REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & corn 21-day % survival; lb/A
 File: 0133zs Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP														
				9	0	3	4	5	6	7	8	1	2					
9	0.178	95.000	95.000	\														
10	0.355	95.000	95.000	.	\													
3	0.0028	100.000	100.000	.	.	\												
4	0.0056	100.000	100.000	.	.	.	\											
5	0.012	100.000	100.000	.	.	.	.	\						
6	0.022	100.000	100.000	.	.	.	.	.	\				
7	0.044	100.000	100.000	.	.	.	.	.	.	\		
8	0.0888	100.000	100.000	.	.	.	.	.	.	.	\
1	Neg control	100.000	100.000	.	.	.	.	.	.	.	.	\
2	0.0014	100.000	100.000	.	.	.	.	.	.	.	.	.	\

* = significant difference (p=0.05) . = no significant difference
 Table q value (0.05,10) = 3.261 SE = 9.948

Aminocyclopyrachlor acid & cucumber % survival; lb/A
 File: 0133cs Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	1	1	39	4	0

Calculated Chi-Square goodness of fit test statistic = 45.3744
 Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & cucumber % survival; lb/A
 File: 0133cs Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

D = 3250.000

W = 0.558

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & cucumber % survival; lb/A
File: 0133cs Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
Additional transformations are useless.

Aminocyclopyrachlor acid & cucumber % survival; lb/A
File: 0133cs Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.00035	100.000	27.50	16.00	5.00	
3	0.00069	100.000	27.50	16.00	5.00	
4	0.0014	100.000	27.50	16.00	5.00	
5	0.0028	100.000	27.50	16.00	5.00	
6	0.0056	100.000	27.50	16.00	5.00	
7	0.012	100.000	27.50	16.00	5.00	
8	0.022	75.000	17.50	16.00	5.00	
9	0.044	35.000	15.00	16.00	5.00	*

Critical values use k = 8, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & cucumber % survival; lb/A
File: 0133cs Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	137.500
2	0.00035	100.000	100.000	137.500

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

3	0.00069	100.000	100.000	137.500
4	0.0014	100.000	100.000	137.500
5	0.0028	100.000	100.000	137.500
6	0.0056	100.000	100.000	137.500
7	0.012	100.000	100.000	137.500
8	0.022	75.000	75.000	56.000
9	0.044	35.000	35.000	16.500

Calculated H Value = 11.163 Critical H Value Table = 15.510
 Since Calc H < Crit H FAIL TO REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & cucumber % survival; lb/A
 File: 0133cs Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP										
				0	0	0	0	0	0	0	0	0		
9	0.044	35.000	35.000	.	.	.	.	.	.	.	.	.	.	.
8	0.022	75.000	75.000	.	.	.	.	.	.	.	.	.	.	.
3	0.00069	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.
4	0.0014	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.
5	0.0028	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.
6	0.0056	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.
7	0.012	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.
1	Neg control	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.
2	0.00035	100.000	100.000	.	.	.	.	.	.	.	.	.	.	.

* = significant difference (p=0.05) . = no significant difference
 Table q value (0.05,9) = 3.197 SE = 9.125

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.012	0.0084	0.018	0.083	0.68
EC10	0.016	0.011	0.021	0.068	0.73
EC25	0.023	0.018	0.028	0.044	0.81
EC50	0.034	0.031	0.039	0.025	0.89

Slope = 3.72 Std.Err. = 0.608

Goodness of fit: p = 1.0 based on DF= 6.0 36.

0133CS : Aminocyclopyrachlor acid & cucumber % survival; lb/A

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	5.00	100.	100.	-0.446	100.	0.00
0.000350	5.00	100.	100.	-0.446	100.	6.11e-12
0.000690	5.00	100.	100.	-0.446	100.	1.33e-08
0.00140	5.00	100.	100.	-0.446	100.	1.15e-05

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A						EPA MRID Number 47560133	
0.00280	5.00	100.	100.	-0.444	100.	0.00252	
0.00560	5.00	100.	100.	-0.278	99.8	0.168	
0.0120	5.00	100.	96.0	4.01	95.6	4.44	
0.0220	5.00	75.0	76.8	-1.83	76.5	23.5	
0.0440	5.00	35.0	34.7	0.321	34.5	65.5	

Aminocyclopyrachlor acid & onion % survival; lb/A
 File: 0133os Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	2	2	35	6	0

Calculated Chi-Square goodness of fit test statistic = 31.2622
 Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & onion % survival; lb/A
 File: 0133os Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 3250.000

W = 0.732

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & onion % survival; lb/A
 File: 0133os Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
 Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
 Additional transformations are useless.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & onion % survival; lb/A
 File: 0133os Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST - Ho: Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.00069	100.000	27.50	16.00	5.00	
3	0.0014	100.000	27.50	16.00	5.00	
4	0.0028	100.000	27.50	16.00	5.00	
5	0.0056	100.000	27.50	16.00	5.00	
6	0.012	100.000	27.50	16.00	5.00	
7	0.022	85.000	22.50	16.00	5.00	
8	0.044	95.000	25.00	16.00	5.00	
9	0.0888	90.000	22.50	16.00	5.00	

Critical values use k = 8, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & onion % survival; lb/A
 File: 0133os Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	127.500
2	0.00069	100.000	100.000	127.500
3	0.0014	100.000	100.000	127.500
4	0.0028	100.000	100.000	127.500
5	0.0056	100.000	100.000	127.500
6	0.012	100.000	100.000	127.500
7	0.022	85.000	85.000	81.000
8	0.044	95.000	95.000	105.500
9	0.0888	90.000	90.000	83.500

Calculated H Value = 3.476 Critical H Value Table = 15.510
 Since Calc H < Crit H FAIL TO REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & onion % survival; lb/A
 File: 0133os Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP										
				0	0	0	0	0	0	0	0	0		
7	0.022	85.000	85.000											
9	0.0888	90.000	90.000											
8	0.044	95.000	95.000											
4	0.0028	100.000	100.000											

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

5	0.0056	100.000	100.000 \
6	0.012	100.000	100.000 \
1	Neg control	100.000	100.000 \
2	0.00069	100.000	100.000 \
3	0.0014	100.000	100.000 \

* = significant difference (p=0.05)
 Table q value (0.05,9) = 3.197

. = no significant difference
 SE = 8.375

Aminocyclopyrachlor acid & soybean % survival; lb/A
 File: 0133gs Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	0	0	49	0	1

Calculated Chi-Square goodness of fit test statistic = 76.0053
 Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & soybean % survival; lb/A
 File: 0133gs Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 500.000

W = 0.328

Critical W (P = 0.05) (n = 50) = 0.947

Critical W (P = 0.01) (n = 50) = 0.930

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & soybean % survival; lb/A
 File: 0133gs Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
 Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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zero variance.

Data FAIL to meet homogeneity of variance assumption.
Additional transformations are useless.

Aminocyclopyrachlor acid & soybean % survival; lb/A
File: 0133gs Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.000023	100.000	27.50	15.00	5.00	
3	0.000068	100.000	27.50	15.00	5.00	
4	0.0002	100.000	27.50	15.00	5.00	
5	0.00041	100.000	27.50	15.00	5.00	
6	0.0012	100.000	27.50	15.00	5.00	
7	0.0037	100.000	27.50	15.00	5.00	
8	0.012	100.000	27.50	15.00	5.00	
9	0.022	30.000	15.00	15.00	5.00	*
10	0.067	0.000	15.00	15.00	5.00	*

Critical values use k = 9, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & soybean % survival; lb/A
File: 0133gs Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	152.500
2	0.000023	100.000	100.000	152.500
3	0.000068	100.000	100.000	152.500
4	0.0002	100.000	100.000	152.500
5	0.00041	100.000	100.000	152.500
6	0.0012	100.000	100.000	152.500
7	0.0037	100.000	100.000	152.500
8	0.012	100.000	100.000	152.500
9	0.022	30.000	30.000	40.000
10	0.067	0.000	0.000	15.000

Calculated H Value = 30.861 Critical H Value Table = 16.920
Since Calc H > Crit H REJECT Ho:All groups are equal.

Aminocyclopyrachlor acid & soybean % survival; lb/A
File: 0133gs Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

TRANSFORMED	ORIGINAL	GROUP
1	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

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GROUP	IDENTIFICATION	MEAN	MEAN	0	9	3	4	5	6	7	8	1	2
10	0.067	0.000	0.000	\									
9	0.022	30.000	30.000	.	\								
3	0.000068	100.000	100.000	.	.	\							
4	0.0002	100.000	100.000	.	.	.	\						
5	0.00041	100.000	100.000	.	.	.	.	\	
6	0.0012	100.000	100.000	.	.	.	.	.	\
7	0.0037	100.000	100.000	.	.	.	.	.	.	\
8	0.012	100.000	100.000	.	.	.	.	.	.	.	\
1	Neg control	100.000	100.000	.	.	.	.	.	.	.	.	\
2	0.000023	100.000	100.000	.	.	.	.	.	.	.	.	.	\

* = significant difference (p=0.05)
Table q value (0.05,10) = 3.261

. = no significant difference
SE = 9.271

0133GS : Aminocyclopyrachlor acid & soybean % survival; lb/A

Williams Test

[One-Sided Test for Decrease, alpha = 0.050000]

Dose	Isotone Means	T-bar	P-value	Significance
0	100	.		
7.6E-06	100	0		N.S.
2.3E-05	100	0		N.S.
6.8E-05	100	0		N.S.
0.0002	100	0		N.S.
0.00041	100	0		N.S.
0.0012	100	0		N.S.
0.0037	100	0		N.S.
0.012	100	0		N.S.
0.022	30	32.83	<0.005	*
0.067	0	46.9	<0.005	*

"*"=Significant; "N.S."=Not Significant.

Aminocyclopyrachlor acid & sugarbeet % survival; lb/A
File: 0133ss Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.015	10.890	17.190	10.890	3.015
OBSERVED	1	2	40	2	0

Calculated Chi-Square goodness of fit test statistic = 49.1437
Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

Aminocyclopyrachlor acid & sugarbeet % survival; lb/A
 File: 0133ss Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 6250.000

W = 0.565

Critical W (P = 0.05) (n = 45) = 0.945

Critical W (P = 0.01) (n = 45) = 0.926

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & sugarbeet % survival; lb/A
 File: 0133ss Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
 Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
 Additional transformations are useless.

Aminocyclopyrachlor acid & sugarbeet % survival; lb/A
 File: 0133ss Transform: NO TRANSFORMATION

STEELES MANY-ONE RANK TEST

Ho: Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.000087	100.000	27.50	16.00	5.00	
3	0.00018	95.000	25.00	16.00	5.00	
4	0.00035	100.000	27.50	16.00	5.00	
5	0.00069	100.000	27.50	16.00	5.00	
6	0.0014	100.000	27.50	16.00	5.00	
7	0.0028	100.000	27.50	16.00	5.00	
8	0.0056	100.000	27.50	16.00	5.00	
9	0.012	60.000	20.00	16.00	5.00	

Critical values use k = 8, are 1 tailed, and alpha = 0.05

Aminocyclopyrachlor acid & sugarbeet % survival; lb/A
 File: 0133ss Transform: NO TRANSFORMATION

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

EPA MRID Number 47560133

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	125.000
2	0.000087	100.000	100.000	125.000
3	0.00018	95.000	95.000	104.000
4	0.00035	100.000	100.000	125.000
5	0.00069	100.000	100.000	125.000
6	0.0014	100.000	100.000	125.000
7	0.0028	100.000	100.000	125.000
8	0.0056	100.000	100.000	125.000
9	0.012	60.000	60.000	56.000

Calculated H Value = 5.741 Critical H Value Table = 15.510
 Since Calc H < Crit H FAIL TO REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & sugarbeet % survival; lb/A
 File: 0133ss Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP															
				0	0	0	0	0	0	0	0	0	0						
9	0.012	60.000	60.000	\															
3	0.00018	95.000	95.000	.	\														
1	Neg control	100.000	100.000	.	.	\													
4	0.00035	100.000	100.000	.	.	.	\												
5	0.00069	100.000	100.000	.	.	.	.	\							
6	0.0014	100.000	100.000	.	.	.	.	.	\					
7	0.0028	100.000	100.000	.	.	.	.	.	.	\			
8	0.0056	100.000	100.000	.	.	.	.	.	.	.	\	
2	0.000087	100.000	100.000	.	.	.	.	.	.	.	.	\

* = significant difference (p=0.05) . = no significant difference
 Table q value (0.05,9) = 3.197 SE = 8.152

Aminocyclopyrachlor acid & tomato % survival; lb/A
 File: 0133ts Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	3.350	12.100	19.100	12.100	3.350
OBSERVED	1	2	45	1	1

Calculated Chi-Square goodness of fit test statistic = 57.0312
 Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

**Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE:
Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number N/A

EPA MRID Number 47560133

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & tomato % survival; lb/A
File: 0133ts Transform: NO TRANSFORMATION

Shapiro Wilks test for normality

D = 2750.000

W = 0.658

Critical W (P = 0.05) (n = 50) = 0.947

Critical W (P = 0.01) (n = 50) = 0.930

Data FAIL normality test. Try another transformation.

Warning - The two homogeneity tests are sensitive to non-normal data and should not be performed.

Aminocyclopyrachlor acid & tomato % survival; lb/A
File: 0133ts Transform: NO TRANSFORMATION

Hartley test for homogeneity of variance
Bartlett's test for homogeneity of variance

These two tests can not be performed because at least one group has zero variance.

Data FAIL to meet homogeneity of variance assumption.
Additional transformations are useless.

Aminocyclopyrachlor acid & tomato % survival; lb/A
File: 0133ts Transform: NO TRANSFORMATION

STEELS MANY-ONE RANK TEST

Ho: Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	Neg control	100.000				
2	0.000087	100.000	27.50	15.00	5.00	
3	0.00018	100.000	27.50	15.00	5.00	
4	0.00035	100.000	27.50	15.00	5.00	
5	0.00069	100.000	27.50	15.00	5.00	
6	0.0014	95.000	25.00	15.00	5.00	
7	0.0028	100.000	27.50	15.00	5.00	
8	0.0056	100.000	27.50	15.00	5.00	
9	0.012	70.000	17.50	15.00	5.00	
10	0.022	5.000	15.00	15.00	5.00	*

Critical values use k = 9, are 1 tailed, and alpha = 0.05

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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Aminocyclopyrachlor acid & tomato % survival; lb/A
 File: 0133ts Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	Neg control	100.000	100.000	152.500
2	0.000087	100.000	100.000	152.500
3	0.00018	100.000	100.000	152.500
4	0.00035	100.000	100.000	152.500
5	0.00069	100.000	100.000	152.500
6	0.0014	95.000	95.000	131.000
7	0.0028	100.000	100.000	152.500
8	0.0056	100.000	100.000	152.500
9	0.012	70.000	70.000	61.500
10	0.022	5.000	5.000	15.000

Calculated H Value = 26.597 Critical H Value Table = 16.920
 Since Calc H > Crit H REJECT Ho: All groups are equal.

Aminocyclopyrachlor acid & tomato % survival; lb/A
 File: 0133ts Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP																
				1	0	0	0	0	0	0	0	0	0	0						
10	0.022	5.000	5.000	\																
9	0.012	70.000	70.000	.	\															
6	0.0014	95.000	95.000	.	.	\														
4	0.00035	100.000	100.000	.	.	.	\													
5	0.00069	100.000	100.000	.	.	.	.	\								
1	Neg control	100.000	100.000	.	.	.	.	.	\						
7	0.0028	100.000	100.000	.	.	.	.	.	.	\				
8	0.0056	100.000	100.000	.	.	.	.	.	.	.	\		
2	0.000087	100.000	100.000	.	.	.	.	.	.	.	.	\
3	0.00018	100.000	100.000	.	.	.	.	.	.	.	.	.	\

* = significant difference. (p=0.05) . = no significant difference
 Table q value (0.05,10) = 3.261 SE = 9.274

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0088	0.0075	0.010	0.034	0.85
EC10	0.0098	0.0085	0.011	0.030	0.87
EC25	0.012	0.010	0.013	0.023	0.90
EC50	0.014	0.013	0.015	0.017	0.92

Slope = 8.27 Std.Err. = 0.892

Data Evaluation Report on the Acute Toxicity of DPX-KJM44 80WG (AE: Aminocyclopyrachlor acid) to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number N/A

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Goodness of fit: p = 1.0 based on DF= 8.0 44.

0133TS : Aminocyclopyrachlor acid & tomato % survival; lb/A

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. - Pred.	Pred. %Control	%Change
0.00	5.00	100.	99.4	0.550	100.	0.00
4.40e-05	5.00	100.	99.4	0.550	100.	2.86e-14
8.70e-05	5.00	100.	99.4	0.550	100.	2.86e-14
0.000180	5.00	100.	99.4	0.550	100.	2.86e-14
0.000350	5.00	100.	99.4	0.550	100.	2.86e-14
0.000690	5.00	100.	99.4	0.550	100.	2.86e-14
0.00140	5.00	95.0	99.4	-4.45	100.	1.43e-14
0.00280	5.00	100.	99.4	0.550	100.	4.09e-07
0.00560	5.00	100.	99.4	0.603	99.9	0.0530
0.0120	5.00	70.0	70.0	-0.00518	70.4	29.6
0.0220	5.00	5.00	5.00	0.000668	5.03	95.0